

# PATENT ABSTRACTS OF JAPAN

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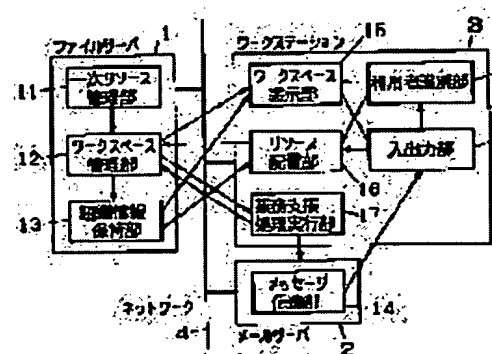
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## (54) INFORMATION PROCESSOR

(57)Abstract:

PURPOSE: To provide an information processor which supports the execution of work operation by managing resources relating to the specific work as a set.

CONSTITUTION: A work space management part 12 gathers and manages the resources relating to the work as a work space separately from the management of resources by a primary resource management part 11. The work space has resource operation information, information on areas on a display screen, a background image, etc., as work-related information. Further, the area information can be defined by a program as well as the areas on the screen. A work space



display part 15 displays icons corresponding to the respective resources on the

background image one over another. The icons can be moved by a resource arrangement part 16. When an icon moves to another area, a program defined corresponding to the area at the movement destination is executed by a work support process execution part 17. Consequently, the same resource can be given meanings depending upon areas where it is arranged.

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## CLAIMS

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[Claim(s)]

[Claim 1] The information processor handling a resource characterized by providing the following The primary resource management tool which manages the aforementioned resource using the resource peculiar information which accompanies the aforementioned resource They are one or more resource reference information which possesses the operating related resource reference unit management tool which manages an operating related resource reference unit, and refers to the information on a resource required for a certain business among the resources with which the aforementioned operating related resource reference unit is managed with the aforementioned primary resource management tool. Resource employment information corresponding to the aforementioned resource reference information which accompanies a resource from a viewpoint of business

[Claim 2] The information processor handling a resource characterized by providing the following The primary resource management tool which manages the aforementioned resource using the resource peculiar information which accompanies the aforementioned resource The operating related resource reference unit management tool which manages an operating related resource reference unit An operating related resource reference unit display means to display the aforementioned operating related resource reference unit A resource arrangement means to make a setup or change of the aforementioned operating related resource reference unit, and an operating support processing execution means to perform operating support processing are provided. the aforementioned operating related resource reference unit The picture which expresses the state or structure of the aforementioned business as operating related information, The field information which matches the control method about this field, the operating support processing to apply, or specific processing for every specific field of a picture, Positional information which corresponds to the resource reference information which refers to the information on one or more resources required for a certain business among the

resources managed with the aforementioned primary resource management tool, and the aforementioned resource reference information which accompanies a resource from a viewpoint of business, and specifies the position on the picture of this resource

[Claim 3] The information processor according to claim 1 or 2 characterized by providing the following Furthermore, an operating management-by-results means to associate and manage the operating actual result period which carried out business using the aforementioned operating related resource reference unit and this operating related resource reference unit An operating record means to manage the recording information which related the record time in the aforementioned operating related information which an operating related resource reference unit has by which specification was carried out [ aforementioned ] at least with the aforementioned resource reference information with the specified record time A search period setting means to set a search period An operating actual result display means to match and display the operating related resource reference unit which searched the operating related resource reference unit in which the aforementioned operating actual result period is contained from the aforementioned operating management-by-results means, and was searched during the aforementioned search, and its operating actual result period, An operating record restoration display means restore and display the state of the operating related resource reference unit in the time by which specification was carried out [ aforementioned ] using the recording information which may have had the aforementioned operating record means searched based on specification of the operating related resource reference unit and the time which were performed according to the display by the aforementioned operating actual result display means

[Claim 4] The information processor handling a resource characterized by providing the following A resource reference information storage means to memorize the resource reference information for referring to the resource used in order to advance a certain specific business A resource employment information-storage means to relate with the aforementioned resource reference information the resource employment information which shows the state of the aforementioned resource according to advance of the aforementioned business, and to memorize it A resource condition storage means to memorize as conditions the state of the aforementioned resource which deletes [ an addition or ] resource reference information to the aforementioned resource reference information storage means A resource reference information change directions means to direct an addition or deletion of the aforementioned resource reference information to the aforementioned resource reference information storage means, A resource reference information change judgment means to judge whether the addition or deletion of resource reference information to the aforementioned resource reference information storage means is possible based on directions by the aforementioned conditions and the

aforementioned resource reference information change directions means which are memorized by the aforementioned resource condition storage means, A resource reference information change means to perform an addition or deletion of this resource reference information when it is judged by this resource reference information change judgment means that an addition or deletion of resource reference information is possible

[Claim 5] The information processor according to claim 4 characterized by having further an operating processing execution means to perform predetermined operating support processing about advance of the aforementioned business with the addition or deletion of resource reference information by the aforementioned resource reference information change means.

[Claim 6] The aforementioned operating support processing is an information processor according to claim 5 characterized by being what transmits mail to the user relevant to the business concerned for an addition or deletion of the aforementioned resource reference information having taken place.

[Claim 7] The information processor handling a resource characterized by providing the following A resource reference information storage means to memorize the resource reference information for referring to the resource used in order to advance a certain specific business A resource employment information-storage means to relate with the aforementioned resource reference information the resource employment information which shows the state of the aforementioned resource according to advance of the aforementioned business, and to memorize it A resource condition storage means to memorize as conditions the state of the aforementioned resource where the resource employment information memorized by the aforementioned resource employment information-storage means can be changed A resource employment information change directions means to direct change of resource employment information to the aforementioned resource employment information-storage means, A resource employment information change judgment means to judge whether change of the resource employment information memorized by the aforementioned resource employment information-storage means based on directions by the aforementioned conditions and the aforementioned resource employment information change directions means which are memorized by the aforementioned resource condition storage means is possible, A resource employment information change means to change resource employment information when it is judged by this resource employment information change judgment means that change of the aforementioned resource employment information is possible

[Claim 8] It has further the field management tool which manages two or more fields which perform the display based on a resource according to the state of a resource. the

aforementioned resource employment information The field information which shows to which field managed by the aforementioned field management tool the resource belongs is included. the aforementioned resource condition storage means A resource memorizes the conditions in which ejection is possible to the aforementioned field from the conditions or the aforementioned field where a resource can move. the aforementioned renewal directions means of resource employment information It points to movement of the resource between the aforementioned fields. the aforementioned resource employment information change judgment means The information processor according to claim 7 characterized by judging whether the movement concerned is possible according to the conditions which the aforementioned resource condition storage means memorizes when movement of a resource is directed by the aforementioned renewal directions means of resource employment information.

[Claim 9] The information processor according to claim 7 or 8 characterized by having further an operating processing execution means to perform predetermined operating support processing about advance of the aforementioned business with change of the resource employment information by the aforementioned resource employment information change means.

[Claim 10] The aforementioned operating support processing is an information processor according to claim 9 characterized by being what transmits mail to the user relevant to the business concerned for change of the aforementioned resource employment information having taken place.

[Claim 11] A resource reference information storage means to memorize the resource reference information for referring to the resource used in the information processor handling a resource in order to advance a certain specific business, A resource employment information-storage means to relate with the aforementioned resource reference information the resource employment information which shows the state of the aforementioned resource according to advance of the aforementioned business, and to memorize it, The 1st workspace which has in each a workspace information-storage means to memorize the workspace management information which contains at least the identifier which makes a lot the aforementioned resource reference information storage means and the aforementioned resource employment information-storage means, and discriminates them, and the 2nd workspace, A resource reference information change directions means to perform the directions which add the resource reference information which refers to the resource referred to by the aforementioned resource reference information storage means of the 1st workspace of the above to the aforementioned resource reference information storage means of the 2nd workspace of the above, A resource reference information change condition storage means to memorize as conditions the aforementioned workspace management information which can change

the aforementioned resource reference information, A judgment means to judge whether reference of the resource of the aforementioned workspace management information of the 1st workspace of the above and the aforementioned workspace management information of the 2nd workspace of the above directed by the aforementioned resource reference change directions means based on either at least is possible, When it is judged by the aforementioned judgment means that reference of a resource is possible, the aforementioned resource reference information storage means of the 2nd workspace of the above is received. by the aforementioned resource reference information storage means of the 1st workspace of the above The information processor characterized by having a reference information change means to add the resource reference information for referring to the resource referred to.

[Claim 12] The information processor according to claim 11 characterized by having further an operating processing execution means to perform predetermined operating support processing about advance of business with the addition of the resource reference information by the aforementioned resource reference information change means.

[Claim 13] The aforementioned operating support processing is workspace management equipment according to claim 12 characterized by being what transmits mail to the user relevant to the business concerned for the addition of the aforementioned resource reference information having taken place.

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## DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] this invention relates to the information processor which manages resources, such as a document and an E-mail required for operating execution, an application program, and an I/O device.

[0002]

[Description of the Prior Art] Various office work can be carried out now with information machines and equipment, such as a personal computer and a workstation, by the end of today. Resources, such as a document which these devices treat, an E-mail, an application program, and an I/O device, are managed by the file system, the database, etc.

[0003] It is effective to pack a required set of a document and a required tool for every

business when advancing business smoothly. The hierarchical directory and the thing to depend on a desktop are known by the conventional technology for packing the resource which can be treated with an information management system.

[0004] The hierarchical directory is adopted by the file system of an operating system like UNIX or MS-DOS (registered trademark). A user can hold information collectively in the unit of a directory, and can constitute further two or more directories in a layered structure. In the information machines and equipment which adopted the hierarchical directory, a user can make a directory able to respond to business, can create, and can store the resource relevant to there.

[0005] However, in file systems, such as UNIX and MS-DOS, each resource stored in the directory is shown to a user by the list of file names. For this reason, it was difficult to understand intuitively what kind of resource is used on business.

[0006] Then, the information management method called desktop was developed by Star (tradename) of Xerox. Drawing 61 is explanatory drawing of a desktop. A desktop holds an individual work environment and offers the 2-dimensional flat surface which makes a desk top a metaphor as shown in drawing 61 (A). The resource relevant to business is arranged on a 2-dimensional flat surface as a figure called icon corresponding to each kind. In drawing 61 (A), peripheral devices, such as a folder which packs data, such as a document, and two or more documents, and a printer, the application program, the reference, etc. are arranged as a symbol it is easier for a user to understand intuitively. In addition, tools, such as a clock and a computer, and other resources are arranged. And a user can arrange the icon on a desktop freely in the position suitable for himself's work.

[0007] Furthermore, in Star, in order to refer to the resource managed by the distributed file system called file server, the icon called reference can be created and it can arrange to a desktop. By the function of a reference, an alias can be given to a shared resource if needed for individual.

[0008] Although one desktop was prepared to the individual as an individual work environment at the beginning, the equipment which prepares two or more 2-dimensional flat surfaces for arranging a resource is also developed. What is depended on Macintosh (registered trademark) of the Apple company, and the thing to depend on Rooms (tradename) of Xerox are known by such conventional technology.

[0009] In Macintosh of the Apple company, this technology is applied to the file system by the hierarchical directory. The 2-dimensional flat surface called folder corresponding to each directory is managed, and the resource which the directory holds can be arranged on it. For example, if the folder of drawing 61 (A) is opened, the display of a 2-dimensional flat surface as further shown in drawing 61 (B) will be obtained.

[0010] Rooms of Xerox can define the desktop called room for every business. The room not only packs the resource, but manages the running state of application. A user can

move to the room for other business in each room, with the state of the application under work saved.

[0011] When using two or more environment for two or more work, or in taking over business to other men, it is necessary to recollect or understand the structure and the property of the work which a user performs in the environment. In an above-mentioned directory and an above-mentioned desktop, it can consider as the help which makes a user understand the structure of work by devising the layered structure by arrangement at information peculiar to resources, such as a name of a resource, and a kind, and a 2-dimensional flat surface, and the reference to other directories and desktops. For example, the suitable name for a resource can be given or the resource related closely can be arranged to near. However, in specific business, it is not so simple as it can be expressed only by the layered structure of arrangement and the name of a resource or a directory, or a folder how a resource is treated or what relation between resources is.

[0012] As other conventional technology which supports business, there are workflow managerial systems, such as LotusNotes (registered trademark) of Lotus and InConsert of Xerox. A workflow managerial system is performing an automatic description and automatic deformation of a document according to the flow of the business decided beforehand, and is a system which supports business.

[0013] In LotusNotes, automatic processing is performed by performing the program embedded on the document. That is, the flow of business is distributed and described inside each document. In InConcert, the flow of business is expressed on the outside of a document. The procedure of distributing the group of a document required of each step of business to a required person is programmable. in which technology, by performing semantic attachment to each element of a set of a document from the view of business does not show intelligibly the structure and the state which are business to a user

[0014] As conventional technology in which the structure of the information in business can be shown intelligibly for a user, there is technology indicated by JP,60-108975,A, for example. the design shown to a user with this technology -- another design matched with the field by directing the predetermined field of a picture using a finger or pointing equipment -- a picture and computer resources, such as a document, can be shown to a user Drawing 62 is explanatory drawing of an example of the display screen of the conventional information processor which used the design. As shown in drawing 62 (A), the design which imitated the complete view of the office which arranged the desk and the cabinet is displayed. In this display screen, directions of the field of the drawer of a cabinet display the design which imitated the inside of a drawer as shown in drawing 62 (B). further -- a design -- finally by pointing to a predetermined field and going in inside, a document picture is acquired With this technology, since a user can define a design freely, it becomes possible to express the structure of business appropriately. It is



equipment using the method with which a card type information system also searches information using this design represented by HyperCard of the Apple company which came to be used widely in recent years.

[0015] The method using a design and the method of the desktop which has arranged the icon are common in that a computer resource can be referred to by directing a figure. the method according [ a different point ] to a design — a design and a design — it is that the mode in which the correspondence relation between the upper field and a resource is defined, and the mode in which a resource is searched using a correspondence relation with the defined design are divided In the mode in which a design is defined, since a user can define a design freely, he can express the composition of the information which was most suitable for its business. In the mode of reference, the structure of the consistent business is maintained by not allowing change of a design. By the method using an icon, the mode can perform movement and deletion about each icon on a desktop always, while it is not divided and a user cannot define the icon figure itself freely.

[0016] Resources, such as a document, have a meaning not only with the content which each has but its important place placed. Especially the resource used on business was packed together with other resources which are not necessarily there by chance and have relation in business, and occupies a part of flow of the business. In other words, at the time of execution of business, role attachment and semantic attachment are made from the view of business to each element of a set of a resource.

[0017] For example, in fact finding, the document of other various related information is referred to in drawing up a results-of-an-investigation report. In this case, a results-of-an-investigation report is a resource used as the output of business, and the information on other is the resources used as an input. It is expectable by showing a user semantic attachment from the view of business to such a resource set with a resource set to consider as the assistance a user understands the flow and condition of business to be.

[0018] such a resource -- giving the significance -- it does not think for every business and a uniform thing cannot necessarily be prepared Moreover, semantic attachment to a resource changes with advance of business also in the same business. For example, with a purchase written request [ finishing / a recognition front and recognition ], even if it is the same resource, meanings differ. Furthermore, a set of a resource also changes with generation of a resource, deletion, movements, etc.

[0019] Furthermore, you must be what can describe variously different semantic attachment from the difference in an operator or business also to the same resource. For example, for an investigation section, although an investigation written request is a resource used as an input in case business is performed, it is a resource used as an output for for example, other product development sections etc.

[0020] However, the method using an above-mentioned icon was not enough for the ability to change freely for every business to be restricted to a position, a name, etc. of an icon and express the structure of business. In the mode in which the method using a design defines a lower pictures image, semantic attachment of a resource is freely possible by using the picture expressing the structure of business. However, in the mode of reference using semantic attachment actually given to the resource, there was a problem that semantic attachment of a resource could not be changed appropriately and it could not go according to advance of business.

[0021] It is very important to, manage the relation between resources, such as a document, and time on the other hand, when carrying out business. The relation between a resource and time is important also from a viewpoint of record of the past business also from the viewpoint of a schedule. Since it became very difficult for an informational amount especially to become huge in recent years, and to classify and arrange, the method which searches information using a time-axis attracts attention. For example, the arranging method based on arranging information in a time order and going to it Yukio Noguchi, the ""\*\*" arranging method", Chuokoron-sha, and in 1993, is proposed.

[0022] As conventional technology which associates a resource and time and is shown to a user, there is JP,5-35737,A etc., for example. A document icon can be arranged on a calender and document data can be searched with this technology from there. with this technology, directly, time is specified, and a document is not searched, but information, such as a change in the document in a rough period and change of a kind, is acquired by the document icon displayed on the calender, and it has the advantage that it can refer to making this information reference even if storage is somewhat ambiguous

[0023] By the way, originally an object to manage for operating execution is the business itself, and is not each resource contained in business. However, on the calender mentioned above, management which made business the unit could not be performed with the technology which arranges a document icon, but the problem that a means only had managing indirectly using a related document resource etc. was.

[0024] The resource which is needed in business is memorized in many cases by the relation with business. For example, although he has forgotten the name, whether they are the documents which were being referred to while performing business like a throat about what time may remain in storage. However, with the technology which arranges a document icon on an above-mentioned calender, since only the relation between a calender and a resource was held, there was a problem that information could not be searched based on the ambiguous storage about such business.

[0025]

[Problem(s) to be Solved by the Invention] this invention was made in view of the situation mentioned above, manages the resource relevant to specific business as a set,

and aims at offering the information processor which supports execution of business. The resource set relevant to business can give freely semantic attachment in which the structure of the business was made to reflect, and can change the semantic attachment appropriately by advance of business.

[0026] Moreover, while enabling time-axis management of the business itself by relating the resource set relevant to business with time, and managing it, it aims at offering the information processor which can offer a means to search a resource, from the ambiguous storage about business and time.

[0027]

[Means for Solving the Problem] In the information processor which treats a resource in invention according to claim 1 The primary resource management tool which manages the aforementioned resource using the resource peculiar information which accompanies the aforementioned resource, The operating related resource reference unit management tool which manages an operating related resource reference unit is provided. the aforementioned operating related resource reference unit One or more resource reference information which refers to the information on a resource required for a certain business among the resources managed with the aforementioned primary resource management tool, It is characterized by having operating related information including the resource employment information corresponding to the aforementioned resource reference information which accompanies a resource from a viewpoint of business.

[0028] In the information processor which treats a resource in invention according to claim 2 The primary resource management tool which manages the aforementioned resource using the resource peculiar information which accompanies the aforementioned resource, The operating related resource reference unit management tool which manages an operating related resource reference unit, An operating related resource reference unit display means to display the aforementioned operating related resource reference unit, A resource arrangement means to make a setup or change of the aforementioned operating related resource reference unit, and an operating support processing execution means to perform operating support processing are provided. the aforementioned operating related resource reference unit The picture which expresses the state or structure of the aforementioned business as operating related information, The field information which matches the control method about this field, the operating support processing to apply, or specific processing for every specific field of a picture, The resource reference information which refers to the information on one or more resources required for a certain business among the resources managed with the aforementioned primary resource management tool, It has the resource employment information containing the positional information which corresponds to the

aforementioned resource reference information which accompanies a resource from a viewpoint of business, and specifies the position on the picture of this resource. The aforementioned operating related resource reference unit display means The aforementioned picture in the aforementioned operating related information, The figure corresponding to the resource to refer to is piled up and displayed on the position shown by the aforementioned positional information in the aforementioned resource employment information. the aforementioned resource arrangement means A setup or change of the aforementioned positional information in the aforementioned resource employment information is possible at least by directions of a user or operating support processing. the aforementioned operating support processing execution means When the resource has been arranged by the aforementioned resource arrangement means to the specific field of the aforementioned picture to which the aforementioned operating support processing is matched by the aforementioned field information in the aforementioned operating related information, Or when the resource arranged to the specific field of the aforementioned picture fulfills predetermined conditions, it is characterized by performing the aforementioned operating support processing matched.

[0029] In a claim 3, it sets to an information processor according to claim 1 or 2. Furthermore, an operating management-by-results means to associate and manage the operating actual result period which carried out business using the aforementioned operating related resource reference unit and this operating related resource reference unit, An operating record means to manage the recording information which related the record time in the aforementioned operating related information which an operating related resource reference unit has by which specification was carried out [ aforementioned ] at least with the aforementioned resource reference information with the specified record time, An operating actual result display means to match and display a search period setting means to set a search period, and the operating related resource reference unit which searched the operating related resource reference unit in which the aforementioned operating actual result period is contained from the aforementioned operating management-by-results means, and was searched during the aforementioned search and its operating actual result period, The state of the operating related resource reference unit in the time by which specification was carried out [ aforementioned ] using the recording information which may have had the aforementioned operating record means searched based on specification of the operating related resource reference unit and time which were performed according to the display by the aforementioned operating actual result display means is restored. It is characterized by having an operating record restoration display means to display.

[0030] A resource reference information storage means to memorize the resource reference information for referring to the resource used in order that invention according

to claim 4 may advance a certain specific business in the information processor handling a resource, A resource employment information-storage means to relate with the aforementioned resource reference information the resource employment information which shows the state of the aforementioned resource according to advance of the aforementioned business, and to memorize it, A resource condition storage means to memorize as conditions the state of the aforementioned resource which deletes [ an addition or ] resource reference information to the aforementioned resource reference information storage means, A resource reference information change directions means to direct an addition or deletion of the aforementioned resource reference information to the aforementioned resource reference information storage means, A resource reference information change judgment means to judge whether the addition or deletion of resource reference information to the aforementioned resource reference information storage means is possible based on directions by the aforementioned conditions and the aforementioned resource reference information change directions means which are memorized by the aforementioned resource condition storage means, When it is judged by this resource reference information change judgment means that an addition or deletion of resource reference information is possible, it is characterized by having a resource reference information change means to perform an addition or deletion of this resource reference information.

[0031] Invention according to claim 5 is characterized by having further an operating processing execution means to perform predetermined operating support processing about advance of the aforementioned business with the addition or deletion of resource reference information by the aforementioned resource reference information change means in an information processor according to claim 4.

[0032] Invention according to claim 6 is characterized by the aforementioned operating support processing being what transmits mail to the user relevant to the business concerned for an addition or deletion of the aforementioned resource reference information having taken place in an information processor according to claim 5.

[0033] A resource reference information storage means to memorize the resource reference information for referring to the resource used in order that invention according to claim 7 may advance a certain specific business in the information processor handling a resource, A resource employment information-storage means to relate with the aforementioned resource reference information the resource employment information which shows the state of the aforementioned resource according to advance of the aforementioned business, and to memorize it, A resource condition storage means to memorize as conditions the state of the aforementioned resource where the resource employment information memorized by the aforementioned resource employment information-storage means can be changed, A resource employment information change

directions means to direct change of resource employment information to the aforementioned resource employment information-storage means, A resource employment information change judgment means to judge whether change of the resource employment information memorized by the aforementioned resource employment information-storage means based on directions by the aforementioned conditions and the aforementioned resource employment information change directions means which are memorized by the aforementioned resource condition storage means is possible, When it is judged by this resource employment information change judgment means that change of the aforementioned resource employment information is possible, it is characterized by having a resource employment information change means to change resource employment information.

[0034] Invention according to claim 8 is set to an information processor according to claim 7. It has further the field management tool which manages two or more fields which perform the display based on a resource according to the state of a resource. the aforementioned resource employment information The field information which shows to which field managed by the aforementioned field management tool the resource belongs is included. the aforementioned resource condition storage means A resource memorizes the conditions in which ejection is possible to the aforementioned field from the conditions or the aforementioned field where a resource can move. the aforementioned renewal directions means of resource employment information It points to movement of the resource between the aforementioned fields. the aforementioned resource employment information change judgment means When movement of a resource is directed by the aforementioned renewal directions means of resource employment information, it is characterized by judging whether the movement concerned is possible according to the conditions which the aforementioned resource condition storage means memorizes.

[0035] Invention according to claim 9 is characterized by having further an operating processing execution means to perform predetermined operating support processing about advance of the aforementioned business with change of the resource employment information by the aforementioned resource employment information change means in an information processor according to claim 7 or 8.

[0036] Invention according to claim 10 is characterized by the aforementioned operating support processing being what transmits mail to the user relevant to the business concerned for change of the aforementioned resource employment information having taken place in an information processor according to claim 9.

[0037] In the information processor with which invention according to claim 11 treats a resource A resource reference information storage means to memorize the resource reference information for referring to the resource used in order to advance a certain

specific business, A resource employment information-storage means to relate with the aforementioned resource reference information the resource employment information which shows the state of the aforementioned resource according to advance of the aforementioned business, and to memorize it, The 1st workspace which has in each a workspace information-storage means to memorize the workspace management information which contains at least the identifier which makes a lot the aforementioned resource reference information storage means and the aforementioned resource employment information-storage means, and discriminates them, and the 2nd workspace, A resource reference information change directions means to perform the directions which add the resource reference information which refers to the resource referred to by the aforementioned resource reference information storage means of the 1st workspace of the above to the aforementioned resource reference information storage means of the 2nd workspace of the above, A resource reference information change condition storage means to memorize as conditions the aforementioned workspace management information which can change the aforementioned resource reference information, A judgment means to judge whether reference of the resource of the aforementioned workspace management information of the 1st workspace of the above and the aforementioned workspace management information of the 2nd workspace of the above directed by the aforementioned resource reference change directions means based on either at least is possible, When it is judged by the aforementioned judgment means that reference of a resource is possible, the aforementioned resource reference information storage means of the 2nd workspace of the above is received. by the aforementioned resource reference information storage means of the 1st workspace of the above It is characterized by having a reference information change means to add the resource reference information for referring to the resource referred to.

[0038] Invention according to claim 12 is characterized by having further an operating processing execution means to perform predetermined operating support processing about advance of business with the addition of the resource reference information by the aforementioned resource reference information change means in an information processor according to claim 11.

[0039] Invention according to claim 13 is characterized by the aforementioned operating support processing being what transmits mail to the user relevant to the business concerned for the addition of the aforementioned resource reference information having taken place in workspace management equipment according to claim 12.

[0040]

[Function] While managing a resource with a primary resource management tool using resource peculiar information which accompanies the resource, such as a name and generation time, according to this invention, it has managed with the operating related

resource reference unit management tool for every business by making the information on one or more resources required for business into an operating related resource reference unit. Thereby, apart from management of the resource by the management method used conventionally, it becomes possible to perform resource management for every business, and smooth execution of business can be supported.

[0041] An operating related resource reference unit management tool manages a resource by the operating related resource reference unit established for every business in order to manage the resource for every business. The operating related resource reference unit includes the resource reference information which refers to the information on one or more resources required for the business among the resources managed with a primary resource management tool as operating related information, and the resource employment information corresponding to the resource reference information. Using these information, while an operating related resource reference unit management tool manages every business, access to the resource which the primary resource management tool has managed is enabled.

[0042] According to invention according to claim 2, the operating related resource reference unit contains the positional information which specifies the position on the picture of a resource required for business into resource employment information for every specific field of the picture expressing the state or structure of business, and a picture, including the field information which matches the control method about this field, the operating support processing to apply, or specific processing further. And when an operating related resource reference unit display means piles up and displays the picture in operating related information, and the figure corresponding to a resource on the position shown by the positional information in resource employment information, to a user, it is easy to understand semantic attachment of the resource in business intuitively, and it is shown.

[0043] Moreover, a resource arrangement means can set up or change the aforementioned positional information in the aforementioned resource information at least by directions of a user or operating support processing. Suitable semantic attachment which followed advance of business to the resource can be performed by this, positioning of a resource can be appropriately changed according to advance of business, and it can go.

[0044] Furthermore, when, as for an operating support processing execution means, the resource has been arranged to the field to which operating support processing is matched by the field information in operating related information, Or when the resource arranged to the specific field fulfills predetermined conditions, it can constitute so that operating support processing matched may be performed, and even if it is the same resource, the processing of the resource which responded for giving the significance can



be made to be able to respond, and can be performed.

[0045] According to invention according to claim 3, the operating record means related the record time in the operating related information which an operating related resource reference unit has specified to be resource reference information at least with the specified record time, and has managed it as recording information. It can be considered that this recording information is the history of the business in the specified record time. On the other hand, the operating management-by-results means has associated and managed the operating related resource reference unit and the operating actual result period which carried out business using the operating related resource reference unit.

[0046] An operating actual result display means searches the operating related resource reference unit in which an operating actual result period is contained from an operating management-by-results means, and matches and displays the searched operating related resource reference unit and its operating actual result period on the search period set by the search period setting means. The displayed operating related resource reference unit is the business currently performed [ be / under / search period / concurrency / it ]. A user specifies time to be desired business, i.e., an operating related resource reference unit, based on this display. According to the time and the operating related resource reference unit which were specified, an operating record restoration display means searches for an operating record means, and restores and displays the state of the past of an operating related resource reference unit using the obtained recording information. A user can choose a desired resource from the state of the resource of the restored operating relation. Thus, the resource relevant to the past business can be searched with giving an operating related resource reference unit reference means by making the ambiguous storage about the resource relevant to business and it into reference conditions.

[0047] The resource reference information which is information for referring to the resource used since a certain specific business is gone on according to invention according to claim 4, Hold the resource employment information which shows the state of a resource, and the addition of resource reference information or directions of deletion is received. It judges whether it is possible by the resource reference change judgment means using the conditions which a resource condition maintenance means holds, when an addition or deletion is possible, it restricts, and an addition or deletion of resource reference information is performed. The inflow or outflow to the workspace of the specified resource reference information can be restricted by this, and it can support so that specific business can be carried out rightly.

[0048] The resource reference information which is information for referring to the resource used since a certain specific business is gone on according to invention according to claim 7, and the resource employment information which shows the state of

a resource hold, and it judges that it is possible by the resource employment change judgment means to directions of change of resource employment information using the conditions which a resource condition maintenance means holds, when it can change, it restricts, and resource employment information changes. Thereby, change of resource employment information can be restricted, and it can support so that specific business can be carried out rightly.

[0049] According to invention according to claim 8, it sets to invention according to claim 7. further As opposed to directions of change of the field to which it has the field management tool which manages two or more fields which perform the display based on a resource according to the state of a resource, and a resource belongs It judges whether it is possible by the resource employment change judgment means using the conditions which a resource condition maintenance means holds, when change of a field is possible, it restricts, and the field to which a resource belongs is changed. While suitable semantic attachment which followed advance of business to the resource is manageable by this with a field, the change the significance [ change ] is given can be restricted, and it can support so that positioning of a resource may be changed appropriately and specific business can be carried out rightly.

[0050] Moreover, according to invention according to claim 11, directions of an addition of the resource reference information to the 2nd workspace by movement or a copy between the workspaces of the resource reference information relevant to specific business etc. are detected. It is based on either at least. the workspace management information of a moved material or a movement place — It restricts, when it judges by the judgment means whether the movement or copy is possible and it is judged that movement or a copy of a resource etc. is possible, and resource reference information is added to the 2nd workspace. Movement or the copy between the workspaces of the specified resource reference information can be restricted by this, and execution of specific business can be supported by ensuring circulation of a resource.

[0051] According to invention given in claims 5, 9, and 12, by establishing an operating processing execution means and performing predetermined operating support processing about advance of business with change of the addition of resource reference information or deletion, and resource employment information etc., even if it is the same resource, processing according to change the resource gives the significance [ change ] can be performed.

[0052] Operating support processing performed in this operating processing execution means can be considered as the processing which transmits mail to claims 6, 10, and 13 like invention of a publication to the user relevant to the business concerned for change of the addition of resource reference information or deletion, and resource employment information etc. having taken place. Thereby, in case a resource is delivered among

persons in charge, arrival of a resource can be reported to the near person in charge who receives, and smooth execution of business can be supported. Since mail is transmitted to a predetermined person in charge even if it does not know the person in charge of the side which the near person in charge who hands receives at this time, it is possible to mitigate the burden of the near person in charge who hands.

[0053]

[Embodiments of the Invention] Drawing 1 is the block diagram showing the form of operation of the 1st of the information processor of this invention. the inside of drawing, and 1 -- a file server and 2 -- a mail server and 3 -- a workstation and 4 -- a network and 11 -- the primary resource Management Department and 12 -- the workspace Management Department and 13 -- for a workspace display and 16, as for an operating support processing statement part and 18, the resource arrangement section and 17 are [ an organization information attaching part and 14 / the message transfer section and 15 / the user discernment section and 19 ] the I/O sections In the following explanation, an operating related resource reference unit is called workspace. The arrow in drawing 1 shows the information flow.

[0054] The form of this operation shows the example realized with the file server 1 treating the workstation 3 for working an individual, and shared information, and the form which combined the mail server 2 with the row by the network 4. However, it is not necessary to be such composition for example, and may be built in one computer, without using a network 4. A file server 1 manages the information used in common by two or more users. The primary resource Management Department 11, the workspace Management Department 12, and the organization information attaching part 13 grade are included. The primary resource Management Department 11 manages the resource which computers, such as a document, treat. Here, a directory shall be used as a management method of a resource. As a management method of a resource, although it calls at a directory, you may use the management method of a database etc. for others. Moreover, a resource may be not only a document but an application program, an I/O device, etc. The workspace Management Department 12 is the management tool of the information expressing the workspace itself. A workspace is a unit which collects and manages the resource which has relation in business. Here, the information expressing the workspace itself shall also be caught with a resource, and shall be managed as the primary resource Management Department 11 and some same directories. The organization information attaching part 13 holds the information about the constituent of an organization as section information. The structure of an organization is expressed by this section information.

[0055] A mail server 2 is shared by two or more users, and exchanges the E-mail between users. The mail server 2 contains the message transfer section 14. The

message transfer section 14 transmits a required message to the destination from a user or specific application using an E-mail.

[0056] A workstation 3 is used in order that a user may work. Here, two or more persons carry out business using the workstation connected to the network 4, respectively. The workstation 3 contains the workspace display 15 and a part of resource contains 16, the operating support processing statement part 17, the user discernment section 18, and the I/O section 19. The workspace display 15 displays the icon corresponding to the resource which the workspace is referring to using the ground picture currently held in relation to business, or the information about the position of a resource. The resource arrangement section 16 is a means to change the position of the icon corresponding to a resource in the workspace display 15. The position of an icon can be changed when a user performs move operation etc. In addition, a user does not need to perform arrangement of a resource interactively. You may change a position by the program. The operating support processing statement part 17 interprets and performs description of the processing for supporting the business currently held by matching with the field, when the resource has been arranged by the resource arrangement section 16 to the specific field. As information relevant to business, a workspace matches description of the processing for supporting such business with a specific field, and holds it. The user discernment section 18 specifies a user. Here, a user's information is used as information for changing the behavior of the workspace display 15 and the resource arrangement section 16. The I/O section 19 is constituted by I/O devices, such as a display, a keyboard, and a mouse. Here, standard input/output control, such as an icon with the display of the window used common to various kinds of applications, keyboard entry, and cursor and button grabbing, shall be performed.

[0057] Next, an example of a data structure used in the form of operation of the 1st of this invention is explained. With the form of this operation, both the primary resource Management Department 11 and the workspace Management Department 12 are realized as some directories of a layered structure. Drawing 2 is explanatory drawing of an example of directory structure. By expression of the data structure shown in drawing 2, an indentation shows a hierarchy, the name which the slash '/' attaches to the tail shows a directory name, and the thing without that right shows the resource name by it. For example, "resources/", "documentation-management pin center,large/", and "form/" are directory names, respectively, this order hierarchizes and a "business trip report" and a "research report" are resources.

[0058] In this directory hierarchy, a resource is managed with a directory "resources/." Furthermore, with the form of this operation, the information expressing the workspace itself is also caught with a resource, and is managed as the primary resource Management Department 11 and some same directories. In this directory hierarchy, a

workspace is managed with a directory "workspaces/."

[0059] The primary resource Management Department 11 has resource peculiar information as information which accompanies a resource, and uses this resource peculiar information for management of a resource. Drawing 3 is explanatory drawing of an example of resource peculiar information. When opening the date and time of creation and the resource which show the resource name which shows the name of a resource, the resource type in which the kind of resource is shown, the maker who shows the name of the person who created the resource, and the time which created the resource as resource peculiar information, it has the application information which shows the application applied by the default. The information which usually shows the application which created the resource as application information is held. In drawing 3 , it considers as an example, and the "research report" and the resource type show [ the "Doi" date and time of creation ] the "document", and the maker shows [ the resource name ] "93/12 / 10 13:30", and the resource peculiar information that application is a "word processor." This resource peculiar information is matched with the resource corresponding to a resource name "a research report", and is held.

[0060] The workspace which the workspace management tool 12 has managed is an information unit for managing a resource, without being caught by the management method of a primary resource. Management of the resource using the workspace is performed using operating related information. Operating related information is information for managing the resource relevant to business. Unlike above-mentioned resource peculiar information, this operating related information is information which is meaningful only in the relation of a resource and business, and has the feature that it is not what accompanies the resource itself.

[0061] Drawing 4 is the conceptual diagram of the relation between a primary resource and a workspace in the form of operation of the 1st of the information processor of this invention. The resource is managed as hierarchical directory structure by the primary resource Management Department 11, for example. The portion which has performed hatching to the right-hand side of a resource shows the resource peculiar information which accompanies a resource. This information may be managed apart from a resource. The workspace holds information required for business as mentioned above as operating related information, and has information, such as resource employment information, field information, and a ground picture. The resource employment information of these is performing relating with the resource managed at the primary resource Management Department 11. This becomes possible to manage the information for every business collectively regardless of the management method of the primary resource Management Department 11.

[0062] Drawing 5 is explanatory drawing of an example of the data structure of the

operating related information in the form of operation of the 1st of the information processor of this invention. Operating related information is constituted by the default director which shows the default directory which stores the workspace ID which shows the pointer to the resource list which is a list of the workspace name which shows the name of a workspace, the ground image information which is the image data of a ground, and resource employment information, the field information list which is a list of field information, and the workspace data in the primary resource Management Department 11, and the newly created resource as shown in drawing 5 . By the example shown in drawing 5 , “/resources / system research section / report draft/” is set up as “/workspaces / report writing”, and a default director as “report writing” and a workspace ID as a workspace name. Drawing 6 is explanatory drawing of an example of the ground picture in the form of operation of the 1st of the information processor of this invention. The picture used as the ground at the time of each icon as shown in drawing 6 being displayed as a ground picture, for example is set up.

[0063] Resource employment information is information for referring to the resource relevant to business. Drawing 7 is explanatory drawing of an example of the resource employment information in the form of operation of the 1st of the information processor of this invention. Resource employment information is constituted by the reference resource information which is a pointer to the resource in the resource name and the primary resource Management Department 11 which show the name of a resource, the arrangement positional information which shows the position which should arrange the icon corresponding to a resource, and the field information which shows the field ID where the icon corresponding to a resource is arranged. Immediately after moving the icon corresponding to a resource, arrangement positional information may differ from the position actually displayed, when regeneration is not performed. The list which consists of three resource employment information is shown in drawing 7 , and, for a “business trip report” and a reference resource, “resources / documentation-management pin center,large / form / business trip report”, and an arrangement position are [ a resource name / “(x1, y1)” and the field of the first resource employment information ] “a.” namely, -- as one of the resources relevant to the business which this workspace shows -- a resource name “a business trip report” -- a resource exists At the primary resource Management Department 11, this resource is managed as “resources / documentation-management pin center,large / form / a business trip report.” The icon corresponding to this resource shows that ID of the field where it is arranged at position“(x1, y1)” on a screen, and the icon is arranged is “a.” The same is said of a resource name “a research report” and “Aoki1.”

[0064] Field information is information for defining a field with the meaning from which plurality differs, when a workspace is displayed on a two-dimensional flat surface.

Drawing 8 is explanatory drawing of an example of the field on the ground picture in the form of operation of the 1st of the information processor of this invention. Drawing 8 shall define as a field the portion which showed hatching among the ground pictures shown in drawing 6 . The field which performed hatching is a field where the icon corresponding to the resource is arranged. Moreover, the program started in the access privilege at the time of each field arranging the icon corresponding to the resource and the case of arrangement is matched. These can perform semantic attachment to each field. That is, even if it is one resource, semantic attachment which is different with the field where a corresponding icon is arranged can be performed. In the example shown in drawing 8 , while the icon corresponding to a certain documents is arranged to Field a When unentered documents are shown and it is arranged to Field c When documents were filled in, it was shown that it is in the state of the waiting for recognition, it is shown that documents were not recognized when it has been arranged to Field e that documents were recognized when arranged to Field d, and arranged to Field f, publishing the recognized documents can be shown.

[0065] Drawing 9 and drawing 10 are explanatory drawings of an example of the field information in the form of operation of the 1st of the information processor of this invention. Field information is constituted by the program information which indicates the programs started when the resource has been arranged in a field to be the right of a display which shows the conditions of the user who may display the field ID which is the identifier of a field, the positional information which is field data, and the resource arranged in the field, and the right of arrangement which shows the conditions of the user who may arrange a resource in a field. Drawing 11 is explanatory drawing of an example of the field data in the form of operation of the 1st of the information processor of this invention. Like the field which performed and showed hatching to drawing 8 , each field shall be a rectangle field altogether and is using the upper left of the rectangle field on a screen, and the lower right position as field data here. That is, in drawing 11 , it is field data of Field a (a (a1, a2)3, a4).

[0066] In the example shown in drawing 9 , the field information about the field a of this drawing 11 , i.e., the field information on field ID "a", has "(a1, a2) (a3, a4)" as positional information. Furthermore, "the member of a documentation-management pin center,large" is specified as "all the members" and a right of arrangement as a right of a display. That is, although the icon of the resource arranged to this field a is displayed to all the members, it is specified that it cannot be performed unless arrangement of the icon of the resource to this field a is the member of a documentation-management pin center,large. In addition, the program information of Field a is not set up. About the field b of drawing 11 , "all the members" are specified as a "resource maker" and a right of arrangement as positional information as "(b1, b2) (b3, b4)" and a right of a display.

[0067] About the field c of drawing 11 , “the superior official of a resource maker or a maker” and the program “send-mail” for transmitting mail as program information, while a “resource maker” is specified as a right of arrangement are specified as positional information as “(c1, c2) (c3, c4)” and a right of a display. As shown in drawing 8 , Field c is a field which has the meaning of the waiting for recognition. When the resource has been arranged to this field, it is necessary to tell a recognition person waiting for recognition. Therefore, it is desirable to perform operation which transmits as mail the purport which is waiting for recognition to the recognition person. In order to realize this, in drawing 9 and the example shown in 10, it was made to correspond to Field c and the program which transmits mail of the purport which asks an arrangement resource maker’s superior official for recognition is specified. The same is said of Fields d and e, and the program which transmits mail of the purport which was not recognized in Field e in mail of the recognized purport to an arrangement resource maker is specified in Field d. Furthermore, about Field f, the program “store-resource” for performing processing which registers the recognized documents is specified. Also about Fields d and f, information, such as a position, a right of a display, and a right of arrangement, is set up.

[0068] Drawing 12 is explanatory drawing of an example of the section information in the form of operation of the 1st of the information processor of this invention. The organization information attaching part 13 holds section information as mentioned above. This section information holds the information about the constituent of each section. The structure of an organization is expressed by the list of this section information. The section information shown in drawing 12 consists of each column of the section which shows the name of a section, the section length who shows the name of section length, and the member who consists of a list of a constituent’s names. In the example shown in drawing 12 , a system research section is a section which makes Chiba section length and consists of 3 names of Aoki, Baba, and Chiba. Moreover, an information management pin center,large is a section which makes Fujii section length and consists of 3 names of Doi, Endo, and Fujii. This section information specifies a member’s superior official, or is used for a limit of the right of a display, the right of arrangement, etc.

[0069] Drawing 13 is a flow chart which shows an example of operation in the form of operation of the 1st of the information processor of this invention. Starting of a user chooses the workspace to be used in S21 according to directions of a user first. Then, in S22, a name and a password are asked to a user and a user account is investigated. In S23, it judges whether the name inputted by the user by S22 and the password are registered, and if the group of a name and a password is not right, it ends. If the group of a name and a password is right, it will progress to S24 and a workspace display program will be performed. While a ground picture is displayed on the display screen, the icon corresponding to each resource is arranged to each arrangement field, and is displayed



on a ground picture in piles.

[0070] In S25, a resource is chosen according to directions of a user. Selection of a resource can be performed by moving and clicking cursor on the resource icon in the display of a workspace using a mouse. Moreover, within a workspace display, when there is cursor of places other than an icon, a menu is started by clicking mouse button. Furthermore, the operation corresponding to one of the menus is chosen by detaching mouse button on the required operation item on a menu. The metaphor prepares a "copy", "movement", "deletion", "name change", etc. as a menu, and it can constitute them so that these operations can be chosen. Processing of a mouse event is performed by the windowing system. Of course, other directions methods can also be used. In S26, it judges whether the menu was chosen or not. When a menu is not chosen, it returns to S25.

[0071] When judged with the menu being chosen by S26, in S27, the processing chosen from the menu is applied to the resource chosen by S25. And in S28, it judges whether the end was directed from the user. Directions of this end can be performed by clicking the end button in for example, the window upper part with a mouse. Processing of a mouse event concerning a window is performed by the windowing system. When end directions are not made yet, it returns to S25, and processing is ended when end directions are made.

[0072] Drawing 14 is a flow chart which shows an example of operation of a workspace display program. An example of operation of the workspace display program performed in S24 of drawing 13 is shown. A workspace display program displays a workspace using the information on the ground picture in the operating related information currently held at the workspace chosen in S21 of drawing 13, a resource employment information list, a field information list, etc. First, in S31, it judges whether the ground picture is already displayed. When the ground picture is not displayed, a ground picture is displayed in S32.

[0073] In S33, the resource employment information that it does not display is chosen out of a resource list. In S34, it judges whether a difference is shown in the arrangement position and display position in the resource employment information chosen by S33. The changed position is held by the move program etc. in the arrangement position of resource employment information. When this value differs from the position displayed now, it means that regeneration is required. When regeneration is required, the display of the icon corresponding to the resource chosen by S35 is eliminated first. And in S36, it judges whether the icon display in an arrangement field is permitted to the user. What is necessary is just to refer to the information on the right of a display within field information with reference to the field information about each field through this value to resource employment information, since the field ID including an arrangement position is held. It is judged using section information as shown in drawing 12 whether the user has

agreed on the conditions set up as a right of a display. When the display of an icon is permitted, in S37, an icon is displayed on an arrangement position.

[0074] When it judges whether all the resources contained in a resource list by S38 were processed and the unsettled resource is contained, it returns to S33 and processing about the following unsettled resource is performed. When the processing about all the resources contained in a workspace is completed, processing by the workspace display program is ended.

[0075] Drawing 15 is a flow chart which shows an example of operation of a move program. In S27 of drawing 13, processing as which it was chosen in the menu is performed. As mentioned above, as a menu, although a "copy", "movement", "deletion", "name change", etc. were prepared, an example of the operation was shown in drawing 15 by making "move" processing into an example here.

[0076] First, in S41, the coordinate of the movement place of the icon corresponding to the resource chosen by S25 of drawing 13 is acquired from operation of a user. A movement place can direct a movement place by moving cursor and clicking a mouse, after a user chooses "move" operation from a menu. The coordinate of the directed movement place is acquired in S41. In S42, the field where the coordinate of a movement place is included is pinpointed. Pinpointing of this field is performed by choosing field information including the coordinate of a movement place from a field information list.

[0077] In S43, it judges whether the permission which arranges an icon to the field of a movement place is given to the user. As shown in drawing 9 and 10, the right of arrangement is set to each field. The judgment in S43 should just judge whether the conditions of this right of arrangement are fulfilled. When a user does not have a right of arrangement, this move program is ended.

[0078] In S44, the arrangement position of an icon is set as the coordinate of the specified movement place. And in S45, the workspace display program shown in drawing 14 is performed, and the picture which the icon moved to the movement place is displayed.

[0079] In S46, it judges whether change of a field arose with movement. That is, it judges whether the field pinpointed by S42 is in agreement to be the value of the field ID currently held at resource employment information. When change of a field has not arisen with movement, a move program is ended as it is. When change of a field has arisen, in S47, the value of the field ID in resource employment information is changed.

[0080] As shown in drawing 9 and the example of 10, a program can be set to each field. Since it is checked by S46 that it is movement of an icon to a new field, in S48, processing currently held corresponding to the field after movement is performed.

[0081] Hereafter, an above-mentioned example of operation is explained based on an example. Drawing 16 is the block diagram showing an example of the concrete use form in

the form of operation of the 1st of this invention. Here, two or more users who call it Mr. Aoki, Mr. Baba, and Mr. Chiba have an individual workstation, respectively, and show the example which is sharing the mail server in the file server row.

[0082] Drawing 17 is explanatory drawing of the example of starting of the information processor in the form of operation of the 1st of this invention. When starting the information processor of the form of this operation, as shown in drawing 17 (A), a user can start by executing the command "open-workspace" from a command line. Of course, you may choose a desired workspace from the icon which shows a workspace. The "open-workspace" command can specify workspace data by the argument. "/workspaces / report writing" is specified in this example.

[0083] Then, since a name and a password are heard as shown in drawing 17 (B), it inputs, respectively. In this example, Mr. Aoki should start and the password is inputted as the name "Aoki." The inputted password is not displayed as it is and shows '\*' here. If it is checked in the user discernment section 18 of drawing 1 that they are the inputted name and the thing into which the password is registered, it will actually be started.

[0084] In addition, closing of this workspace is performed by clicking the end button currently displayed on the window upper part.

[0085] Drawing 18 is explanatory drawing of an example of the workspace of the during starting in the example of the form of operation of the 1st of the information processor of this invention. If an information processor is started, the display of a workspace as a window opened, for example, shown in drawing 18 will appear. This workspace writes various kinds of reports, and is collecting information required for a series of work until it obtains and publishes recognition.

[0086] a workspace receives a resource set -- two kinds of methods are offered for giving the significance One is because the ground picture for helping an intuitive understanding and intuitive storage of a user is shown. Another depends the program which processes the resource by the computer on making a field accompany. By it being related and defining these two kinds of semantic attachments, support of the execution of business which interlocked an understanding of human being and control of a computer is attained.

[0087] this example -- a user -- giving the significance -- it is performed by the pattern of a design shown in drawing 6 it can set to a computer -- giving the significance -- as shown in drawing 11 , it is carried out to each field of abcdef It has the respectively following meanings.

Field a: Form field. The resource to be used is arranged as a template of a report.

Field b: Working area. The resource used for writing work is arranged.

Field c: Waiting field for recognition. The resource of a recognition waiting state is arranged.

Field d: Recognition field. A resource [ finishing / recognition ] is arranged.

Field e: Rejection field. The resource which was not recognized is arranged.

Field f: Registration field. The resource to register is arranged.

In addition, as field information which the information shown in drawing 5 shall be defined as operating related information, and accompanies each field, drawing 9 and the information shown in 10 shall be defined. Furthermore, by the initial state, two resource employment information corresponding to the resource name "the business trip report" and the "research report" which are shown in drawing 7 shall be defined as the resource employment information list.

[0088] The icon corresponding to two resources of a "business trip report" and a "research report" and the menu are displayed in piles on the ground picture which shows the display shown in drawing 18 to drawing 6 . Two resources are the templates of a report and each icon is arranged to the field which shows form. That is, the icon corresponding to two resources is arranged to the field a shown in drawing 11 . The menu is not displayed in an initial state.

[0089] If the resource currently displayed is chosen and mouse button is pushed, a menu will appear. If the form of a research report is chosen and a "copy" is chosen in the menu shown in drawing 18 in order that Mr. Aoki may write a new research report, a copy will be generated and the icon corresponding to the generated new resource of a "research report" will be displayed on Field b, i.e., a working area. Furthermore, "name change" of a menu is chosen and the name of a new name "Aoki1" is inputted. Drawing 19 is explanatory drawing of an example of the workspace in the state where the document for edit was drawn up. The icon corresponding to the document for edit "Aoki1" is arranged by having copied the document "a research report" as mentioned above, and having changed the name at a working area.

[0090] Drawing 20 is explanatory drawing of an example of the directory structure after the copy of a document. A new file is added to the directory which the primary resource Management Department 11 manages by the copy of an above-mentioned document. In drawing 20 , it is created as resources / system research section / report draft / Aoki1. With it, the resource employment information corresponding to a document "Aoki1" is also reproduced and added also into the operating related information of a workspace. The information indicating the file "Aoki1" to which this resource employment information was added to the directory is included. In addition, although the resource name in resource peculiar information and the resource name in the resource employment information on a workspace are made the same in this example, generally both are good by another name.

[0091] Mr. Aoki writes this document using a word processor etc. The word processor for editing this document can be started by choosing an icon in a workspace and

double-clicking mouse button. Starting of this word processor can be performed using the application information in the resource peculiar information shown in drawing 3 . When a document "a research report" is copied, resource peculiar information is also copied and the resource peculiar information shown in a document "Aoki1" at drawing 3 accompanies. Regardless of giving the significance, since it is the information in a workspace which should be set up for every resource, such application information is held as resource peculiar information.

[0092] An end of edit moves this document icon to the field which shows the state of the waiting for recognition by move operation. What is necessary is just to choose move operation from a menu. Drawing 21 is explanatory drawing of an example of the workspace after move operation. The state where the icon moved to the field which shows the state of the waiting for recognition is shown in drawing 21 (A). If a resource is moved to the field c which shows the state of the waiting for recognition, i.e., the field shown in drawing 11 , the program matched with the field will be started. Since the program which transmits mail is defined as this field c as shown in drawing 9 , this program is started. Thereby, as shown in drawing 21 (B), the mail which asks for recognition of a report is sent to Mr. Chiba who is Mr. Aoki's superior official.

[0093] If Mr. Chiba receives mail, as he shows drawing 17 like above-mentioned Mr. Aoki by his own workstation, he will start the same workspace, and will look at a report Aoki1. When recognizing a report, the icon corresponding to a document "Aoki1" is moved to a recognition field. Moreover, when dismissing a report, an icon is moved to a rejection field. Explanatory drawing of an example of a workspace when drawing 22 recognizes a report, and drawing 23 are explanatory drawings of an example of the workspace at the time of dismissing a report. If a report is recognized and an icon is moved to the recognition field d, i.e., the field of drawing 11 , it will become a display as shown in drawing 22 (A). Since the program which transmits mail is defined as Field d with it as shown in drawing 9 , as shown in drawing 22 (B), the mail of a purport with which the report was recognized is sent to Mr. Aoki from Mr. Chiba. If similarly a report is dismissed and an icon is moved to the rejection field e, i.e., the field of drawing 11 , it will become a display as shown in drawing 23 (A). Since the program which transmits the mail of a purport with which the report was dismissed to Field e is defined as shown in drawing 10 with it, mail as shown in drawing 23 (B) is sent to Mr. Aoki from Mr. Chiba.

[0094] Drawing 24 is explanatory drawing of an example of the workspace at the time of publishing a document. \*\* [ recognition of a report / move / the icon corresponding to the document "Aoki1" of the recognized report / as shown in drawing 24 / Mr. Aoki / to the registration field for issue procedure ] The program for registering a resource, as shown in drawing 10 is defined as the registration field f, i.e., the field in drawing 11 . This program starts with movement of an icon and the report "Aoki1" which Mr. Aoki wrote in

the documentation-management pin center,large is registered.

[0095] Drawing 25 is explanatory drawing of an example of the directory structure after document registration. By registration of this document, as shown in drawing 25 , a document moves to the bottom of the directory of resources / documentation-management pin center,large / issue report/for the first time. In the process from old document writing to the waiting for recognition, and recognition, in managing at the primary resource Management Department 11, movement of a document is not generated. This is because the workspace has managed change of the state relevant to business. Of course, it is not necessary to move a document in document registration. It is moving, when managing a primary resource by the directory.

[0096] In an above-mentioned example, Mr. Aoki and Mr. Chiba of a superior official do not necessarily operate it, looking at the display of the same workspace. For example, it sets to drawing 20 , and when Mr. Aoki is in the state of the waiting for recognition of a report "Aoki1", Mr. Baba who is Mr. Aoki's coworker presupposes that waiting and "Baba2" were written for recognition of a report "Baba1."

[0097] Explanatory drawing of an example of a workspace which Mr. Baba catches sight of as for explanatory drawing of an example of a workspace in which drawing 26 was shared, and drawing 27 , and drawing 28 are explanatory drawings of an example of a workspace which Mr. Chiba catches sight of. Since the workspace is shared, when displaying all information, as shown in drawing 26 , the icon corresponding to the report of Mr. Aoki of the waiting for recognition and Mr. Baba and the report under writing of Mr. Baba will be displayed. Here, with the gestalt of this operation, as shown in drawing 9 and 10, it has the information on the right of a display in field information. The limit is added to the resource displayed in each field so that a user can see only a required resource by this right of a display. In this example, the rights of a display of Field b of the right of a display of Field c is [ only a resource maker ] a resource maker and its superior official. Therefore, as shown to Mr. Aoki at drawing 20 , the document "Aoki1" of the waiting for recognition is displayed, as shown to Mr. Baba at drawing 27 , the document "Baba1" of the waiting for recognition and the document under writing "Baba2" are displayed, and as shown in drawing 28 , the document "Aoki1" of the waiting for recognition and a document "Baba1" are displayed on Mr. Chiba.

[0098] Moreover, not only a display but a limit of operation is performed by the user. For example, only Mr. Chiba of a superior official cannot do movement to the field of recognition of the waiting for recognition from a field. This is based on the information on the right of arrangement in drawing 9 and the field information shown in 10. In this example, the right of arrangement of the field d which is a recognition field is only a resource maker's superior official, as shown in drawing 9 . Therefore, only Mr. Chiba cannot do movement of an icon to a recognition field, i.e., recognition of a report, and Mr.

Aoki cannot recognize it personally. the same -- carrying out -- Field a -- member all the members of a documentation-management pin center, large -- Field b -- all the members -- Field c -- as for Field e, icon arrangement is permitted to the maker of a resource to a resource maker and its superior official at the superior official of the maker of a resource, as for Field f

[0099] it recognizes in an above-mentioned example -- and the recognition result is delivered with mail Thus, when the resource has been arranged to the specific field, by sending a message to a specific user, the advance condition of business can be told and smooth advance of the whole business can be aimed at.

[0100] Drawing 29 is the block diagram showing the gestalt of operation of the 2nd of the information processor of this invention. Among drawing, the same sign is given to the same portion as drawing 1 , and explanation is omitted. 51 -- for the display periodical-accounting section and 54, as for the workspace record selection section and 56, an operating schedule display and 55 are [ an operating record attaching part and 52 / the reference conditioning section and 53 / a workspace restoration display and 57 ] the resource selection sections By using the workspace which accumulated the resource per business like the gestalt of the 1st operation, the gestalt of this 2nd operation is equipment which manages the schedule of an operating unit, and has added further the function to search the resource relevant to business, based on [ about a time-axis ] ambiguous storage. The tool which performs this reference will be called time-axis reference tool.

[0101] The gestalt of operation shown in drawing 29 shows the example realized with the gestalt which the file server 1 treating the workstation 3 for working an individual and shared information combined by the network 4. However, it is possible to realize with various gestalten -- not only this but one computer realizes. The arrow in drawing shows the information flow.

[0102] The file server 1 contains the primary resource Management Department 11, the workspace Management Department 12, and the operating record attaching part 51. The primary resource Management Department 11 is the same as that of the gestalt 1 of the 1st operation. In addition to the information currently held with the gestalt of the 1st operation, and the gestalt of the 1st operation as operating related information in a workspace although it is almost the same, the workspace Management Department 12 also holds the list of time information. Using this time information, the operating actual result period which carried out the business can be managed, and the workspace Management Department 12 includes the operating management-by-results function. The operating record attaching part 51 holds the list of recording information as record of business.

[0103] The workstation 3 contains the reference conditioning section 52, the display

periodical-accounting section 53, the operating schedule display 54, the workspace record selection section 55, the workspace restoration display 56, the resource selection section 57, and the I/O section 19. The reference conditioning section 52 sets up the conditions for searching a workspace. The display periodical-accounting section 53 calculates the period which displays a schedule from the reference conditions set up in the reference conditioning section 52. The workspace record selection section 54 displays the schedule of the period calculated in the display periodical-accounting section 53. The workspace record selection section 55 chooses the recording information corresponding to the group of the time which is on a schedule display and was directed by the user, and a workspace. The workspace restoration display 56 restores and displays the recorded state of a workspace of those days based on the information currently held at recording information. The resource selection section 57 is on a workspace display, and chooses a resource according to directions of a user. The I/O section 19 is the same as that of the gestalt of the 1st operation.

[0104] Next, an example of a data structure used in the gestalt of operation of the 2nd of this invention is explained. Resource peculiar information is the same as the gestalt of the 1st operation. In addition to the information currently held with the gestalt of the 1st operation, the operating related information in a workspace holds the list of time information. Drawing 30 is explanatory drawing of an example of time information. Time information is information about a schedule and has information and the end time information which shows the time of an operating end at the time of the classification information which shows beforehand whether it is a certain actual result, and the opening day which shows the time of an operating start.

[0105] Drawing 31 is explanatory drawing of an example of recording information. Recording information is held at the operating record attaching part 51. Recording information holds the operating related information which the workspace at the time of recording has with the message which shows the reason of record etc. to a record time row. The message which shows the reason of the record time information which shows the time which recorded the data of the workspace ID which is a pointer to the workspace in the primary resource Management Department 11 as recording information, and a workspace, the ground picture in record time, the resource list in record time, and record etc. can constitute. In the example shown in drawing 31, the first example is a part of operating related information recorded in 10:00 on May 12, 94, Workspaces ID are "/workspaces / advanced-technology investigation", and the ground picture and resource list in record time are recorded, and the message "the completion of investigation" is added. The same is said of other examples.

[0106] Drawing 32 is a flow chart which shows an example of whole operation in the gestalt of operation of the 2nd of this invention. It can start like the gestalt of the 1st



operation with the "time-axis-search" command which the user inputted. In S61, it judges whether the end was directed from the user. A program will be ended if the end is directed. In S62, it judges whether the user changed reference conditions. If reference conditions are not changed, it progresses to S66, without performing reference processing and schedule display processing. When reference conditions are changed, it searches by progressing to S63.

[0107] The reference conditions which the user inputted are read in S63. And the recording information which is in agreement with reference conditions by S64 is acquired, and a certain period containing the acquired recording information is calculated. In S65, about the display period calculated by S64, a schedule display program is performed and the schedule is indicated by the bar.

[0108] In S66, it judges whether the user chose the schedule bar currently displayed. A user can choose a schedule bar by moving cursor for example, onto a schedule bar, and clicking a mouse. The schedule bar currently displayed is matched with the workspace, respectively. When the schedule bar is chosen, it progresses to S67. In S67, the workspace corresponding to the schedule bar which the user chose is specified, and the time corresponding to the directed position is calculated simultaneously. In S68, the recording information recorded on the time calculated by S67 among the recording information about the workspace specified by S67 or the recording information recorded on the time most approached after the calculated time is chosen from recording information. And in S69, a workspace is restored and displayed based on the recording information chosen by S68, and it returns to S61.

[0109] In S66, when the schedule bar is not chosen, in S70, it judges whether cursor is in workspace display area. When there is no cursor in workspace display area, it returns to S61. When cursor exists in workspace display area, in S71, it judges whether the user chose the resource further. A user moves cursor onto the icon of a resource and can choose a resource by clicking with a mouse. When the resource is chosen, the program matched with the selected resource is started in S72. For example, in the case of a document icon etc., the document editor program matched is started. And it returns to S61.

[0110] Drawing 33 is a flow chart which shows an example of operation of a schedule display program. Drawing 33 shows the processing performed in S65 of drawing 32. A schedule display program is a program which displays the schedule for the specified display period. A schedule is shown by arranging the figure corresponding to the time information which is the operating related information of a workspace, and the figure corresponding to recording information on a calendar display.

[0111] The calendar picture for a display period is generated and displayed in S81. The workspace which has a schedule or the time information on an actual result during the

display is a workspace which should be displayed. A non-displayed workspace is chosen from the workspace which should be displayed in S82. In S83, the display height of the schedule bar corresponding to a workspace is calculated, and a workspace name is displayed on the display position of a schedule bar in S84.

[0112] In S85, the time information list about the workspace to display is acquired. The time information that it does not display is chosen from the acquired time information list in S86. And in S87, the schedule bar corresponding to time information is displayed. A schedule bar is displayed as a rectangle which crosses from the time of an opening day to end time. At this time, for example, the time information on a schedule, it is desirable to distinguish to display time information as a rectangle which performed hatching etc. with an actual result, and to display on it as a white rectangle. In S88, when it judges whether all time information was displayed about the workspace under display processing and the time information that it does not display remains, it returns to S86.

[0113] A display of all time information collects the recording information about the workspace under display processing in S89. In S90, out of the recording information collected by S89, non-displayed recording information is chosen and a marker and a message are displayed in S91 based on the selected recording information. For example, a triangular marker can be displayed on the position of the record time of the recording information of a schedule bar, and the message which approaches and is further held as recording information can be displayed. In S92, when it judges whether all the recording information about the workspace under display processing was displayed and non-displayed recording information exists, it returns to S90 and the following recording information is displayed.

[0114] In S93, when it judges whether all the workspaces that should be displayed were displayed and the non-displayed workspace remains, it returns to S82 and display processing about the following workspace is performed. When a display is completed about all the workspaces that should be displayed, a schedule display program is ended and it returns to a main program.

[0115] Drawing 34 is a flow chart which shows an example of operation of a workspace restoration display program. Drawing 34 shows the processing performed in S69 of drawing 32. A workspace restoration display program performs processing which restores and displays a workspace based on the information currently held at the directed recording information.

[0116] In S101, the ground picture held at recording information is displayed. And in S102, the icon corresponding to the resource which chose the non-displayed resource and was chosen from the resource list held at recording information in S103 is displayed on an arrangement position. When it judges whether all the resources of a resource list were displayed by S104 and a non-displayed resource exists, it returns to S102 and display

processing of the following resource is performed. Processing is ended when all the resources are displayed.

[0117] Next, operation in the gestalt of operation of the 2nd of this invention is explained based on an example. Here, signs that the resource concerning the business which used the workspace is searched are shown. First, the example of the workspace used by this example is explained. Explanatory drawing of an example of a ground picture [ in / the gestalt of operation of the 2nd of this invention / in drawing 35 ] and drawing 36 are the same, explanatory drawing of the field on a ground picture, drawing 37 , and drawing 38 are the same, and it is explanatory drawing of field information.

[0118] This workspace is a workspace of the name of "advanced-technology investigation", if an investigation request is received, it will investigate, and it performs business which registers the result. In piles, as shown in drawing 36 , the field is defined as the ground picture shown in drawing 35 . Each field performs the following semantic attachments to a resource.

Field a: Working area. The resource for work, such as a conclusion of results of an investigation, is arranged.

Field b: Request receptionist field. The resource for requesting investigation is arranged.

Field c: Reference field. The resource referred to to investigation information is arranged.

Field d: Interim storage field. The field used for directions of interim storage.

Field e: Completion field. The field used for directions of the completion of investigation.

[0119] a computing control of each field sake -- giving the significance -- it is made using drawing 37 and the field information shown in 38 The position of each field, the right of a display, and the right of arrangement are set to each field information. Moreover, the program started when the resource has been arranged is also described about Fields a, d, and e. The program is defined as a combination of the following commands. Recording information is generated and command record-workspace added to the operating record attaching part 51, command store-resource which evacuates the resource of the specified field temporarily, and command delete-resource which deletes the resource of the specified field are used. Each processing is defined by each field using these.

[0120] For the field information corresponding to Field a, the state of a workspace when the resource has been arranged at the working area (field a) is recorded by command record-workspace. At this time, the message of a purport which started the investigation shown in the resource is registered. For the field information corresponding to Field d, the resource in a working area (field a) and a reference field (field c) is moved to somewhere else, using command store-resource twice. For the field information corresponding to Field e, the state of a workspace is first recorded by command record-workspace with the message which shows the completion of investigation. While moving the resource in a working area (field a) to somewhere else by command

store-resource moreover, the resource in a working area (field c) is deleted by command delete-resource. Although the program of these fields d and e is started by arranging a resource consequently, it will move to the place where the resource arranged was defined. Therefore, there is no state where the resource is arranged to this field.

[0121] In addition, like the case of the gestalt of the 1st operation, although carried out ignited by arrangement of a resource, you may be made to perform starting of a program ignited by the click of a mouse, for example.

[0122] It shall be set up about the information on others for realizing this workspace as well as the gestalt of the 1st operation, and considers as the same thing as the gestalt of the 1st operation also with operation on a workspace.

[0123] Explanatory drawing of the state of a workspace just before investigation 1 completes drawing 39 , and drawing 40 are explanatory drawings of the state of a workspace immediately after investigation 2 starts. In drawing 39 , the "results of an investigation 1" which are "investigation 1" and results of an investigation which are investigation requests are arranged at a working area, the "investigation 2" which is the next investigation request is arranged in a request receptionist field, and "reference works A", "reference works B", and "reference works C" are arranged as data used by investigation 1 in the reference field. When investigation 1 is completed, an icon is moved like the gestalt of the 1st operation of a \*\*\*\*. That is, "results of an investigation 1" are moved to a completion field. Then, since the program is defined as the completion field (field e) as shown in drawing 38 , a program is performed with arrangement of an icon. By program execution, the state of a workspace is first recorded with the message which shows the completion of investigation. While moving the "investigation 1" in a working area (field a), and "results of an investigation 1" to a directory / resources / documentation-management pin center, large / results of an investigation moreover, the reference works in a working area (field c) are deleted.

[0124] Then, investigation 2 is started. Therefore, the icon of the "investigation 2" arranged to the request receptionist field is moved to a working area. Since the program is defined as the field information corresponding to a working area (field a), a program is performed with arrangement of an icon. As shown in drawing 37 , the program defined by the field information on Field a records the state of a workspace with the message of a purport which started the investigation shown in the resource. Therefore, the information on a workspace shown in drawing 40 with the message of a purport which started investigation 2 will be recorded.

[0125] Next, a time-axis reference tool is started. The directions from a command line etc. can perform starting of a time-axis reference tool like the gestalt of the 1st operation. Drawing 41 is explanatory drawing of an example of the input screen of the reference conditions in a time-axis reference tool. The display screen of a time-axis

reference tool consists of reference conditioning area, calendar display area, and workspace display area, as shown in drawing 41 . Closing of a time-axis reference tool is performed by clicking the end button of the window upper part.

[0126] For example, the case where “the reference for which I feel that it saw when the writing was begun although it thought that there was no direct relation to JP,1,B” is looked for is considered. It is usually that storage is brought back little by little by seeing such information related when there is only ambiguous storage, and search progresses. Reference which begins from this condition is hereafter made into an example, and operation is explained.

[0127] As shown in drawing 41 , the conditions of “JP,1,B’&’ start” are set up as reference conditions. Searching record of a workspace which contains simultaneously the word “JP,1,B” and “start” out of recording information is directed by inputting this condition, for example, clicking a reference button with a mouse. For example, supposing the recording information shown in drawing 31 was held at the operating record attaching part 51, the recording information of the 4th patent writing workspace of drawing 31 will have the message of “starting JP,1,B”, and this recording information will be searched. And based on the time “94/5 / 11 14:00” on which this recording information was recorded, the display periodical-accounting section 53 calculates a display period. In this example, one week containing 94/5/11 turns into a display period. Of course, it can also constitute possible [ specification of a display period ].

[0128] Moreover, based on the calculated display period, the recording information recorded within this display period is acquired. For example, all four recording information shown in drawing 31 is acquired. The operating schedule display 54 displays the schedule table containing 94/5/11 for one week on calendar display area based on the acquired recording information.

[0129] Drawing 42 is explanatory drawing of an example of the screen in a time-axis reference tool by which it was indicated by the schedule. The oblong rectangle which shows a schedule is called schedule bar, and shows the schedule and actual result of business which are summarized as a unit of a workspace. The character string at the upper left of a schedule bar is a corresponding workspace name. Since the acquired recording information, i.e., the recording information shown in drawing 31 , is a thing about three workspaces, an advanced-technology investigation workspace, a report writing workspace, and a patent writing workspace, in drawing 42 , three schedule bars are displayed corresponding to each workspace.

[0130] Although there are a white portion and a portion which performed hatching in a schedule bar, the portion to which the white portion performed hatching for the time of a schedule shows the time of an actual result. The method of presentation can use various methods, such as changing not only this but reversal, a monochrome color, and

monochrome brightness. Actual result time is taken out from the time information about a workspace at the time of the scheduled day. The recording information about a workspace is shown as a marker of the triangle under a schedule bar. The character string which indicates a message to be a marker is displayed on the position of record time.

[0131] A user can grasp a work breakdown before and after writing JP,1,B by seeing the operating schedule currently displayed like drawing 42 . Here, the reference seen by the advanced-technology investigation which was being conducted by preceding writing JP,1,B should remember that it was desired reference. Then, a user searches for an advanced-technology investigation workspace.

[0132] A corresponding workspace is searched by choosing a schedule bar. And the searched workspace is displayed on workspace display area. At this time, the state of a workspace of those days is restored and displayed from the newest recording information after the time corresponding to the position directed with the mouse.

Drawing 43 is explanatory drawing of an example of the workspace restoration display in a time-axis reference tool. For example, as shown in drawing 43 , a restoration indication of the state of the workspace recorded at 5 / the 14 times is given by directing 5/14 of the positions of the schedule bar in which an advanced-technology investigation workspace is shown. The state of the workspace restored here is in the state of the workspace at the time of starting the investigation 2 shown in drawing 40 .

[0133] For a user, the state of the workspace at the time of having begun writing of JP,1,B is required of this example. For that purpose, what is necessary is just to direct 5/11 of the positions of the schedule bar in which an advanced-technology investigation workspace is shown. Drawing 44 is explanatory drawing of another example of the workspace restoration display in a time-axis reference tool. Based on the newest recording information after it, i.e., the recording information recorded at 5 / the 12 times, as shown in drawing 44 , a restoration indication of the state of a workspace is given by directing 5/11. And the reference which was being referred to at this time can be discovered on a workspace, and desired reference can be accessed by carrying out mouse operation.

[0134] In addition, in the example of the reference used here, there is the Management Department of the operating unit of a workspace, per business, a schedule is managed and being displayed has an important meaning. When the document name etc. is not memorized, even if it matches time information and a document name directly and displays them, it is difficult like the conventional technology (JP,5-35737,A) to look for a desired document. First of all, the matter what work to have done when is meaningful as a schedule from the matter which document to have referred to when. It is usually that storage is brought back little by little by generally seeing related information in reference

by ambiguous storage, and the search method changes. Furthermore, excelling in storage of rough visual-sense information and storage of a context or causal relation as a property of storage of human being at the time of comparing with a computer is known. The display of the context of the lower pictures image presented by the workspace and the business in a schedule display can help the call lifting of storage of human being effectively.

[0135] Drawing 45 is the block diagram showing the gestalt of operation of the 3rd of the information processor of this invention. Among drawing, the same sign is given to the same portion as drawing 1 , and explanation is omitted. As for the resource status-change judgment section and 112, 111 is [ the resource status-change section and 113 ] the resource status-change directions sections. The gestalt of this operation shows the example realized with the gestalt combined by the file server 1 treating the workstation 3 for working an individual, and shared information. However, it is not necessary to be such composition for example, and may be built in one computer, without using a network 4.

[0136] By two or more users, a file server 1 manages the information used in common, and contains the resource status-change judgment section 111 and the resource status-change section 112 with the primary resource Management Department 11 and the workspace Management Department 12. The workspace Management Department 12 is a unit which collects and manages the resource which has relation in business, and gives and manages semantic attachment in a workspace to the resource which computers, such as a document, treat. Here, a directory shall be used as a management method of a resource. It is possible like the gestalt of the 1st operation of a \*\*\*\* as a management method of a resource and a resource to use various resources and management methods. The resource status-change judgment section 111 tests by comparison the operating definition information and resource employment information which the operating related information which the workspace Management Department 12 holds includes to the directions inputted from the resource status-change directions section 113, and judges whether change of the state of a resource is permitted. The resource status-change section 112 performs change of the resource reference information of the specified resource, or resource employment information, addition, and deletion, when change is permitted by judgment of the resource status-change judgment section 111.

[0137] The workstation 3 contains the resource status-change directions section 113 with the workspace display 15, the operating support processing statement part 17, and the I/O section 19. The resource status-change directions section 113 gives directions of changing the resource employment information corresponding to resource reference information, or changing the field where a resource belongs, in order that a user may

advance business using a workspace. It can constitute so that a user may perform directions of this resource status change interactively. However, directions may be given not only by this but by the program. As an example of resource status-change directions, the thing of being directed by the script in which a command is struck, a menu is chosen as, or the operating support processing statement part 17 performs the exterior to the resource which he starts [ he generates a direct resource, eliminates and ] and refers to, and edits, and a user moves or it makes a resource flowing into an inflow or the exterior can be considered.

[0138] The operating support processing statement part 17 interprets and performs description of the processing for supporting the business currently held by matching with the workspace or field, when a change of a resource state is made. As information relevant to business, a workspace matches description of the processing for supporting such business with a workspace or a specific field, and holds it.

[0139] The workspace display 15 displays the resource name or icon corresponding to the resource which a workspace holds using the information about the position or processing state of the resource currently held in relation to business. The method of presentation by the workspace display 15 may be displayed two-dimensional or in three dimensions using a ground picture, and even if it sorts and displays in a list in an alphabetical order or generation time of a resource name etc., it is not cared about. Moreover, it does not matter in order to display the state of a resource, even if it makes it display on a different field according to the processing state which may change the resource name showing a resource or the color of an icon and a form, and a font, may display a processing state as attribute value, and displays a resource.

[0140] Next, an example of a data structure used in the gestalt of operation of the 3rd of this invention is explained. The primary resource Management Department 11 and the workspace Management Department 12 are realized by the database as some directories of a layered structure as shown in the gestalt of the 1st operation. Drawing 46 is the conceptual diagram showing an example of the data structure in the primary resource Management Department 11 in a gestalt and the workspace Management Department 12 of operation of the 3rd of an information processor of this invention. The primary resource Management Department 11 has managed resource peculiar information, such as the resource itself, and a resource name which accompanies it, a maker, data classification and the date and time of creation, like the gestalt of the 1st operation of a \*\*\*\*. The workspace Management Department 12 has managed one or more workspaces. Each workspace has operating related information and is performing related attachment by the resource managed by resource reference information at the primary resource Management Department 11.

[0141] Drawing 47 is explanatory drawing of an example of the data structure of the



operating related information in the gestalt of operation of the 3rd of the information processor of this invention. The operating related information in the gestalt of this 3rd operation can be constituted as shown in drawing 47 , for example, so that it may have the information on the workspace name which shows the name of a workspace, the ground picture which is the image data of a ground, the reference directory of a workspace, etc., operating definition information, and a resource list. By the example shown in drawing 47 , “/workspace / routine task” is set up as a workspace name as a “fixed form processing workspace”, “null” which shows that a ground picture is not used as a ground picture, and a workspace director. Operating definition information and a resource list are explained below.

[0142] Drawing 48 is explanatory drawing of an example of the data structure of the operating definition information in the gestalt of operation of the 3rd of the information processor of this invention. Operating definition information has an inflow (addition) or the conditions which are related for flowing out (deletion) of the resource to a workspace, and the script performed when it is performed, and has a list of each fields on the screen when displaying a workspace further. In the example shown in drawing 48 , it has the conditions of the resource itself, and the conditions of the workspace before an inflow, or the workspace after an outflow as the inflow of the resource to a workspace, and conditions for an outflow. By the example, that whose reference type of a resource is “form” is specified as the inflow of the resource to a workspace, and conditions for an outflow. Therefore, as for the inflow of resources other than “form”, and the outflow, the reference type is forbidden. In addition, the conditions of a workspace are not specified but serve as “null.”

[0143] Moreover, in the example shown in drawing 48 , the operating support processing at the time of the inflow of a resource and an outflow can be set up. The processing to which the operating support processing program which performs this processing should perform when directions called movement to the specific field of the inflow appearance of the resource to a workspace or generation, elimination, starting, reference, edit, or a resource are performed is described. The operating support processing at the time of the resource inflow to a certain workspace is described by the example shown in drawing 48 . If the “question” is contained in the name of the resource which flowed, the mail “it is a question about — from —” will be sent out to Mr. person-in-charge “Aoki”, and a resource will be moved to a receptionist box field. Moreover, if the “question” is not contained in the name of the resource which flowed, it is judged as “a request”, the mail “it is the request about — from —” is sent out to Mr. person-in-charge “Aoki”, and a resource is moved to a receptionist box field.

[0144] Drawing 49 is explanatory drawing of an example of the data structure of the field information within the operating definition information in the gestalt of operation of the

3rd of the information processor of this invention. Field information has the position in the realm name which is the name of a field, and a workspace, the conditions about an inflow or outflow of a resource to a field, and the script performed when it is performed. By the example shown in drawing 49 , it has a "receptionist box field" as a realm name, and "(5 30)" is set up as a position displayed in a workspace. Moreover, when the reference type of a resource is "form" as resource conditions which can be flowed, the conditions to which an inflow is permitted are set up, and the resource conditions which can be flowed out are not set up. In the inflow from the inflow from other workspaces, or a field "various format fields", as field conditions which can be flowed, the conditions to which the inflow of the resource to this field is permitted are set up. The conditions permitted as field conditions which can be flowed out only when the field of an outflow place is field" during "processing are set up. Furthermore, an inflow of a resource describes the processing which transmits the mail "the resource was received" to the user who made the resource flow into a workspace as an operating support processing program to this "receptionist box field" performed at the time of the inflow of a resource. Moreover, the processing to which the mail "processing was received" is transmitted to the again same user as an operating support processing program performed in case a resource flows out of this "receptionist box field" is described.

[0145] Drawing 50 is explanatory drawing of an example of the data structure of the resource employment information in the gestalt of operation of the 3rd of the information processor of this invention. The resource list of [ in operating related information ] is a list of resource employment information. Resource employment information has the arrangement position and affiliation field on a workspace, the resource reference information which is the pointer of a resource to refer to. Resource employment information is constituted from an example shown in drawing 50 by information, such as application started in case the reference resource director which are the field to which the reference name which is the name used in case a resource is referred to, a reference type, and a resource belong, the existence of recognition, the arrangement position on a workspace, the maker of a resource, and resource reference information, and a resource are referred to. "Form" and the affiliation field have not specifically been recognized [ "various format fields" and ] as "going-out traveling-expenses form and a reference type as a reference name, as for "(12 7)" and a maker, Mr. "Aoki" is set up, and, as for the arrangement position, "/resources/bin/TextEdit" is set up as "/resources/form / going-out traveling expenses", and starting application in the case of reference, as for the resource.

[0146] In addition, although the resource reference information which is information for referring to a resource inside is included in the example of the resource employment information shown in this drawing 50 , the various composition methods, such as

managing not only this but resource reference information apart from resource employment information, and matching it mutually, can be used. When managing resource reference information apart from resource employment information, it becomes possible to change the matching arbitrarily. Thereby, a user can make now easily the grant and change of resource employment information which show the state of a resource.

[0147] Drawing 51 is explanatory drawing of an example of a display of the workspace in the gestalt of operation of the 3rd of the information processor of this invention. In this example, the field and the processed field are set up during various format fields, a receptionist box field, and processing on the display screen, and the icon corresponding to the resource with which the workspace display 15 belongs to each field and each field is displayed. In this example, a ground picture is not used but the rectangle frame shows each field instead. Or you may use such a rectangle frame as a ground picture. The resource of a workspace may not belong to the case where it belongs to one of any fields of it, and which, either, or it may belong to two or more fields simultaneously.

[0148] Drawing 52 is explanatory drawing of another example of a display of the workspace in the gestalt of operation of the 3rd of the information processor of this invention. The list of resource names expresses the display of a workspace in this example. Here, it classifies for every field like processing ending during various formats, a receptionist box, and processing, and the resource name is enumerated and displayed on the bottom of the realm name of each field. Or a resource name may be sorted by the alphabetical order or the date and time of creation, and an affiliation field may be displayed as an attribute. The operating related information of each workspace holds the rule how to display a resource according to each processing state.

[0149] Next, the example which performs a setup of the conditions of the inflow and outflow to a workspace or each field and a script is shown. Drawing 53 and drawing 54 are explanatory drawings showing an example of the screen under setup of the operating definition information on the workspace in the gestalt of operation of the 3rd of the information processor of this invention. This example shows signs that the window which sets up each inflow appearance property is carrying out pop-up one from various format fields, the processed field, and the workspace, in the state where the display of a workspace window as shown in drawing 51 is performed. In addition, on account of illustration, since the window which sets up the inflow appearance property of various format fields is hidden in the window which sets up the inflow appearance property of a workspace, this is shown in drawing 54.

[0150] In the window of the inflow appearance property of a workspace, it specifies that a reference type is "form" as conditions for a resource of performing inflow and defluxion. It can also be deleted that this adds only the resource described to be "form" for the reference type attribute of resource employment information to this workspace.

It is except form, for example, can avoid changing application required of this workspace etc. into men other than a manager by carrying out such usage. Moreover, it is said that the form of a question or the form of a request is judged as a processing program at the time of the inflow of a workspace, and the resource which flowed is added to a receptionist box field. Drawing 53 has described the function. In addition, the conditions of the workspace of a flowing agency and the conditions of the workspace of an outflow place are not set up. Moreover, the processing program at the time of the outflow of a resource is not set up.

[0151] As various format fields are shown in drawing 54 , it flows, and it flows out [ both ] and the reference type has allowed only the thing of "form." Unprepared operation of being by this as making it moving to other fields conversely \*\*\*\* [ , and ] can be prevented. [ moving the application of other fields to this field ] Moreover, when it is going to take out one form from various format fields, the reference which the outflow processing program started, created the reference which refers to the copy and copy of the primary resource which the form points out, and was created newly is made to flow out, since the processing into which copy the document for an outflow and the copy is made to flow as a processing program at the time of an outflow is set up. In addition, the conditions and inflow processing program of a workspace of an outflow place are an undefined a flowing agency.

[0152] It is set up that the information on recognition in resource employment information is O.K. as resource conditions at the time of an inflow, and, as for the processed field, the field is specified during processing as conditions for the field of a flowing agency. Furthermore, as an inflow processing program, if it is the resource of a question, it will accumulate in a FAQ database, if it is the resource of a request, it will accumulate in the database of a ledger, and the procedure which transmits completion mail to a client is described. Thereby, as for a processed field, processing to which completion mail is transmitted to the user who it divided [ user ] into the question and the request on the occasion of an inflow by receiving only the resource with which the attribute of recognition in a field was set to O.K., accumulated [ user ] in the database, and made the resource flow into a workspace is performed during processing. By such conditioning, it can become finishing processing the format which is not filled [ for example, ] in, or fault, like it becomes finishing accidentally processing the documents which are not recognized can be canceled, and business can be advanced smoothly.

[0153] Drawing 55 is a flow chart which shows an example of operation at the time of the inflow of the resource in the gestalt of operation of the 3rd of the information processor of this invention. In S121, detection of directions of the inflow operation to the workspace of a resource reads resource employment information in S122. Then, in S123, it checks about the conditions of the resource which are the inflow conditions to the

workspace in operating definition information, and the conditions of the workspace of a flowing agency. If an inflow is not allowed, in S126, the display of a workspace is updated in the original state and it ends. If an inflow is permitted, in S124, an operating support processing program will be performed at the time of the inflow of a workspace. And resource employment information is updated in S125, and by S126, regeneration of the workspace is carried out and it ends.

[0154] Operation at the time of the outflow of a resource is the same as that of operation at the time of an above-mentioned inflow almost, outflow directions of a resource are detected and it checks about the conditions of a resource and the conditions of the workspace of an outflow place which are outflow conditions from the workspace in operating definition information, if an outflow is allowed, an operating support processing program will be performed at the time of the outflow of a workspace, resource employment information is updated, and regeneration is carried out in a workspace

[0155] Drawing 56 is a flow chart which shows an example of operation of the domain migration of the resource in the gestalt of operation of the 3rd of the information processor of this invention. Detection of directions of the move operation to the field of a resource from a field checks the conditions whether the field of a movement place is first allowed whether to be the resource which can flow out of the field of a moved material as an outflow place in S131. Then, in S132, the conditions whether the field of a moved material is allowed whether to be the resource which can flow in the field of a movement place as a flowing agency are checked. If these [ all ] are filled, the outflow script of a moved material will be started and performed in S133. Furthermore, the inflow script of a movement place is started and performed in S134. And in S135, resource employment information is updated, and by S136, regeneration of a workspace is performed and it ends.

[0156] In addition, when performing move operation of the resource from a certain field to a certain field in other workspaces in a certain workspace, operation at the time of the outflow from the workspace which becomes above-mentioned move origin, and operation at the time of the inflow to the workspace used as a movement place will be performed further.

[0157] Next, an example of operation in the gestalt of operation of the 3rd of an above-mentioned this invention is explained based on an example. Here, it explains using the example using the fixed form processing workspace which performs routine tasks, such as purchase of its post of a certain, and going-out traveling-expenses liquidation. As a system configuration, it is the same as that of the example of the gestalt of the 1st operation, there are a file server and every one mail server, and the situation shown in drawing 16 that each user has each workstation explains. Of course, it is not necessary

to be this composition and the composition in which could use the same workstation or the same personal computer, and a workstation combines a file server and a mail server is satisfactory for each user.

[0158] Drawing 57 is explanatory drawing showing the example of the concrete screen display of the workspace in the gestalt of operation of the 3rd of the information processor of this invention. The example of the display screen as which the fixed form processing workspace and the Aoki homework space are displayed is shown in drawing 57. A fixed form processing workspace is a common workspace, and the field which writes in the form shown in drawing 51 is displayed. The icon of resources for reference, such as request forms, such as purchase and going-out traveling-expenses liquidation, and question form, is displayed on various format fields. Usage of each member of its post taking out required form from here, filling in a required matter, and making it flow into a fixed form processing workspace again shall be carried out.

[0159] An Aoki homework space presupposes that it is the workspace which performs Mr. Aoki's routine work. The other workspaces reference field is established in an exhibit maintenance field, an inbox field, a working area, and it at this workspace. Mr. Aoki is looking at the Aoki homework space and the fixed form processing workspace on his own workstation. The information on these workspaces is in a file server, a workspace will be opened, and reference or edit will be performed.

[0160] Drawing 58 is explanatory drawing of the scene of copying form to an Aoki homework space and burying it from a fixed form processing workspace in the example in the gestalt of operation of the 3rd of the information processor of this invention. Since Mr. Aoki wants to liquidate going-out traveling expenses, going-out traveling-expenses form is first copied to an Aoki homework space from a fixed form processing workspace. The operating instruction usually used can be used as operation of a copy, for example, a copy can be directed by drag and drop.

[0161] At this time, the check of the resource defluxion conditions in the various format fields of a fixed form processing workspace is performed first. Moreover, the resource defluxion conditions of a fixed form processing workspace are checked. Furthermore, the check of the inflow conditions of the Aoki homework space which is an inflow place, and the check of the inflow conditions of a working area are performed. A path of these checks performs an operating support processing program one by one at the time of the inflow of an operating support processing program and a working area at the time of the inflow of an operating support processing program and an Aoki homework space at the time of the outflow of an operating support processing program and a fixed form processing workspace at the time of the outflow of various format fields. Going-out traveling-expenses form is copied to the working area of an Aoki homework space at last these processings of a series of were performed.

[0162] Application described by resource employment information is performed by Mr. Aoki's choosing the icon of the going-out traveling-expenses form copied to the working area by double click etc., and directing reference. For example, when the resource employment information shown in drawing 50 is set up, the text editor (/resources/bin/TextEdit) set up as starting application starts. Going-out traveling-expenses form can be filled in by this text editor. Drawing 58 also shows the window of this text editor.

[0163] Drawing 59 is explanatory drawing of the scene which returned again the form written in in the example in the gestalt of operation of the 3rd of the information processor of this invention to the fixed form processing workspace, and was received. Going-out traveling-expenses form is returned to a fixed form processing workspace after writing down a predetermined matter in going-out traveling-expenses form by the text editor. For that purpose, what is necessary is just to move or copy going-out traveling-expenses form to the icon of the fixed form processing workspace in another workspaces reference field from the working area in an Aoki homework space. This operation can apply the method of drags and drops the icon of the going-out traveling-expenses form in a working area to the icon of the fixed form processing workspace in another workspaces reference field.

[0164] Then, if the check of the outflow conditions in a working area and the check of the inflow conditions of another workspaces reference field were performed and conditions are cleared, the operating support processing program at the time of an outflow/inflow of each field will be performed continuously. And check of movement to a fixed form processing workspace from an Aoki homework space and execution of an operating support processing program are performed further shortly. For example, if it is set up as the operating definition information on a fixed form processing workspace shows drawing 48, while the mail "it is the request about the going-out traveling expenses from Aoki" will be sent to a person in charge by the operating support processing program at the time of an inflow, the going-out traveling-expenses form which Mr. Aoki wrote in will be put on the receptionist box field of a fixed form processing workspace. The person in charge of fixed form processing can know that Mr. Aoki's going-out traveling-expenses form flowed in the receptionist box with the mail sent from a fixed form processing workspace.

[0165] Receptionist operation of this form may perform the directions directly moved to the receptionist box field of a fixed form processing workspace from the working area of for example, an Aoki homework space. In this case, execution of an operating support processing program will be performed at the time of the inflow of an operating support processing program and a fixed form processing workspace, and a receptionist box field at the time of the outflow of the check of the inflow conditions of the check of the

outflow conditions of a working area and an Aoki homework space, a fixed form processing workspace, and a receptionist box field, a working area, and an Aoki homework space.

[0166] Drawing 60 is explanatory drawing of the scene where it recognized by a person in charge checking the resource of a reference place in the example in the gestalt of operation of the 3rd of the information processor of this invention. The person in charge who looked at the mail sent out from the fixed form processing workspace opens a fixed form processing workspace, and moves the going-out traveling-expenses form of Mr. Aoki in a receptionist box field to a field during processing to perform processing about the going-out traveling-expenses form which Mr. Aoki created. Of course, the outflow conditions in a receptionist box field and inflow conditions [ in / a field / under processing ] are checked also at this time, and execution of an operating support processing program is made during an operating support processing program and processing at the time of the inflow of a field at the time of the outflow of a receptionist box field. For example, it is also possible to start during processing the application specified automatically according to the inflow of the going-out traveling-expenses form to a field, and to perform processing to the going-out traveling-expenses form which flowed. And after processing, a person in charge opens a property sheet in order to change the resource employment information on going-out traveling-expenses form.

[0167] An example of the window of the property sheet of this resource employment information is also shown in drawing 60 . Resource employment information is displayed on this property sheet, and change is also possible. Here, a person in charge changes the attribute of "recognition" into "O.K." among the resource employment information on going-out traveling-expenses form.

[0168] And this going-out traveling-expenses form is moved to a processed field. The outflow conditions of a field and the inflow conditions of a processed field are checked during processing also here. For example, when recognition checks that it is O.K. on the inflow conditions of a processed field, the mistake which makes unsettled form finishing [ processing ] accidentally can be prevented. A path of a check performs an operating support processing program one by one during processing at the time of the inflow of an operating support processing program and a processed field at the time of the outflow of a field. For example, while mail of the completion of processing will be sent to Mr. Aoki if a setup as the operating definition information on a processed field shows to drawing 53 is made, and Mr. Aoki's going-out traveling-expenses form is moved to a processed field, going-out traveling-expenses form is stored in the database of a ledger.

[0169] The above-mentioned example showed the example which supports the request of a routine task, and processing of a question using the common workspace on a file server. Each member takes out the form which writes in a request, a question, etc. from



the workspace, writes a required matter in the form, and returns it to a workspace, and a person in charge corresponds to it. That is, a person in charge did not need to be conscious of who it is, and each member should know only the workspace which performs business. Moreover, a workspace can support effectively the work which should be done there by the check of an inflow and an outflow, and execution of a processing program.

[0170]

[Effect of the Invention] According to this invention, execution of business is effectively supportable by introducing the operating related resource reference unit (workspace) which is a unit which summarized a specific resource and specific information required for business so that clearly from the above explanation. Unlike what packs a resource, by using an operating resource maintenance unit, it becomes possible like a directory or a folder before to perform semantic attachment from the view of business to a resource. the resource in business is received -- giving the significance -- it is carried out using arrangement of the figure which displays a resource, and the picture of a ground or description of processing, and it becomes possible to offer a resource and processing required for an operator to required timing

[0171] the business from which an operating related resource reference unit differs -- or according to advance of business, different semantic attachment to the same resource can be given Moreover, while two or more operators are sharing the unit which packed the resource, the presentation method of a different resource for every operator and an operating instruction can be changed.

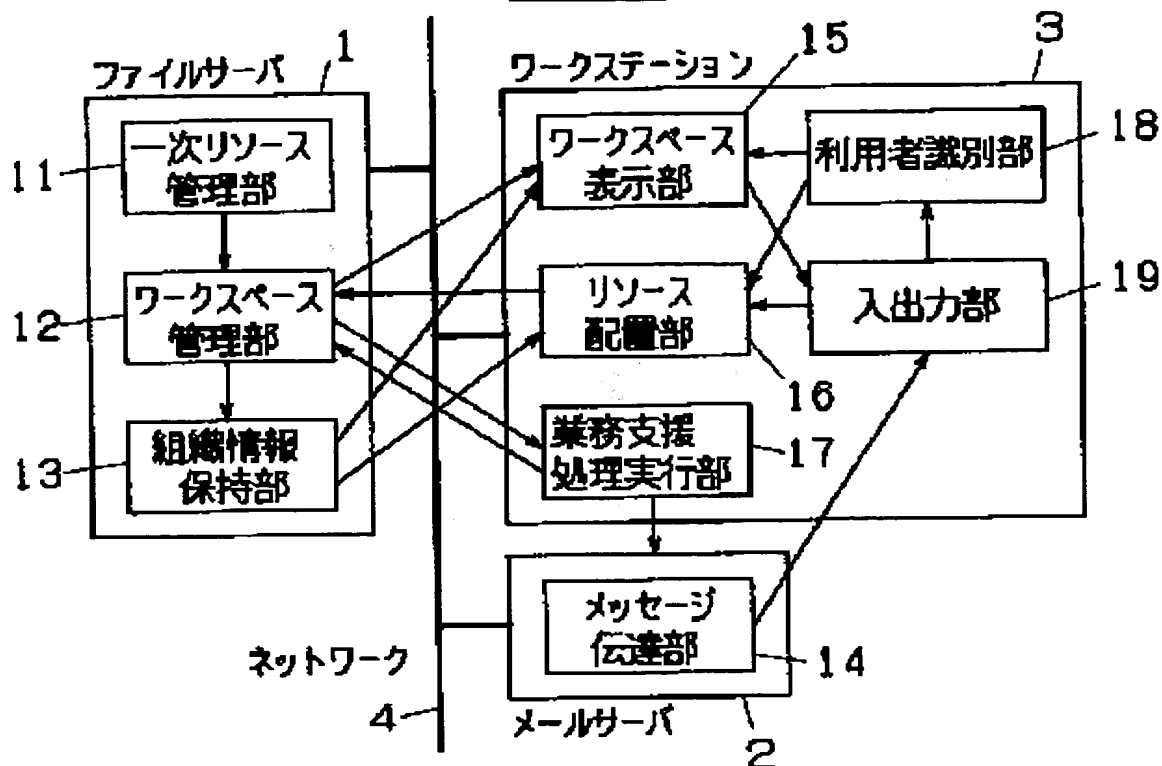
[0172] Furthermore, since business is expressed as a unit of a resource, schedule-pipe \*\* of work can be performed using the unit. The unit summarized for every business is arranged on a schedule, and it becomes possible to use it also as record also as a schedule.

[0173] Moreover, while eliminating a resource unrelated to advance of business by restricting the addition of the resource to a workspace which is not suitable, deletion, and an addition and deletion of the resource to each field on a workspace which is not suitable, unprepared deletion of a required resource can be prevented, and it can support so that suitable processing in a workspace can be performed. Furthermore, by restricting the status change of the resource which is not [ between the fields in a workspace ] suitable, by marking the route of advance of business and restricting movement of the resource which is not [ between workspaces ] suitable, a resource unrelated to advance of business can be eliminated and it can process based on a suitable processing process, and it can support so that business can be carried out. In the case of the change of state of these resources, by detecting this change of state and performing operating support processing automatically corresponding to this, the knowledge for operating execution

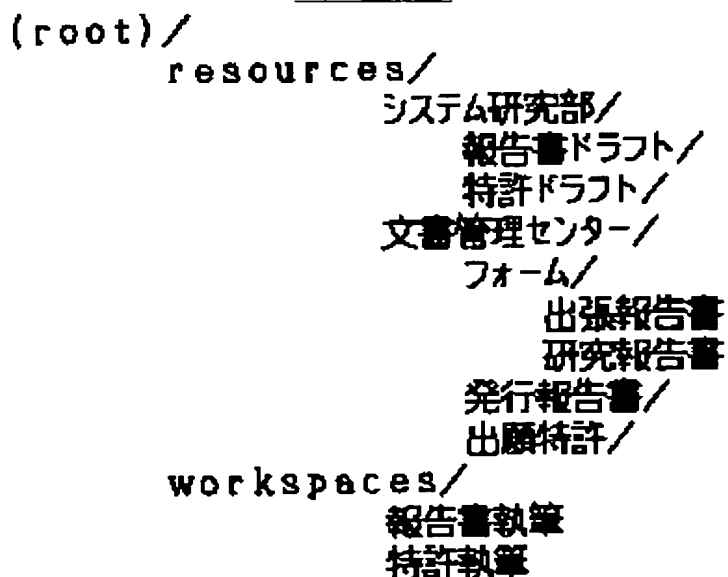
can be embedded, and according to this invention, various effects are done so — execution of business is effectively supportable.

## DRAWINGS

[Drawing 1]



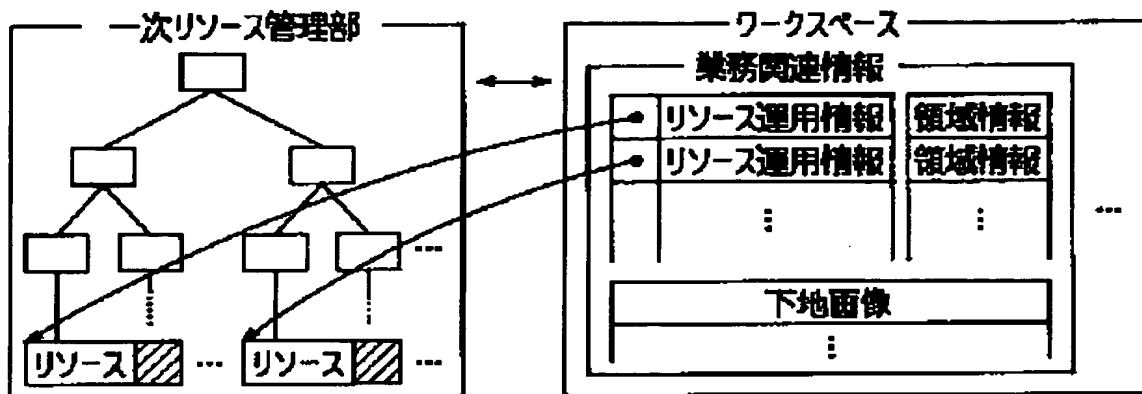
[Drawing 2]



[Drawing 3]

リソース名	: 研究報告書
リソースタイプ	: 文書
作成者	: Doi
作成日時	: 93/12/10 13:30
アプリケーション	: ワードプロセッサ

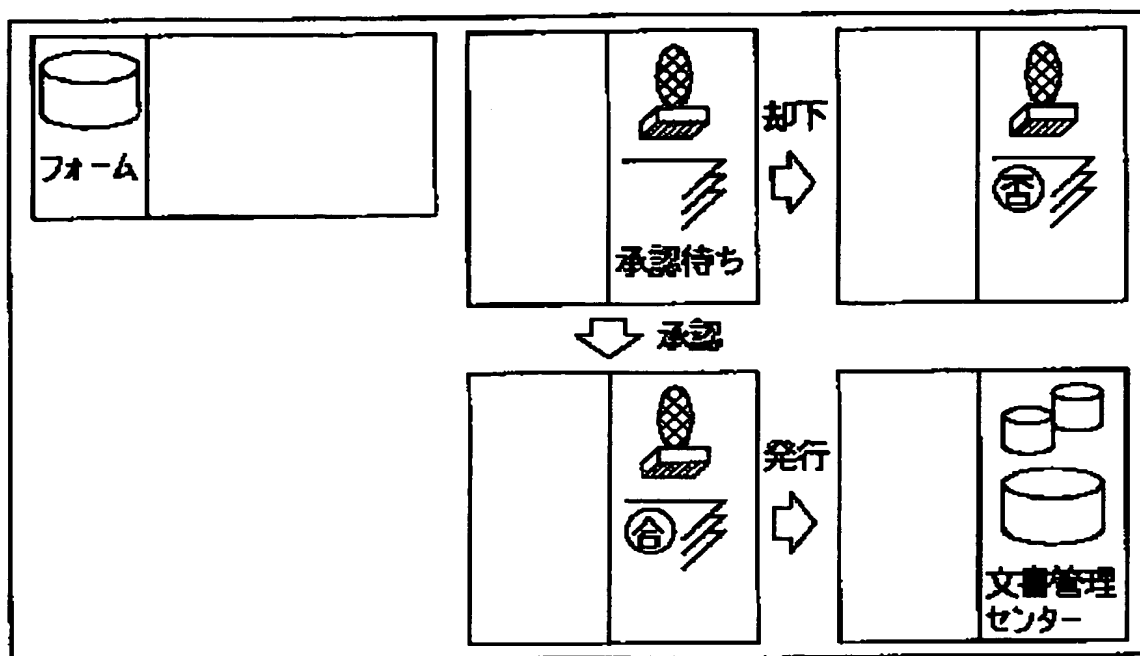
[Drawing 4]



[Drawing 5]

ワークスペース名	: 報告書執筆
下地面像	: (図6の画像)
リソースリスト	: (図7の例参照)
領域情報リスト	: (図9, 10の例参照)
ワークスペースID	: /workspaces/報告書執筆
デフォルトDIR	: /resources/システム研究部/報告書ドラフト/

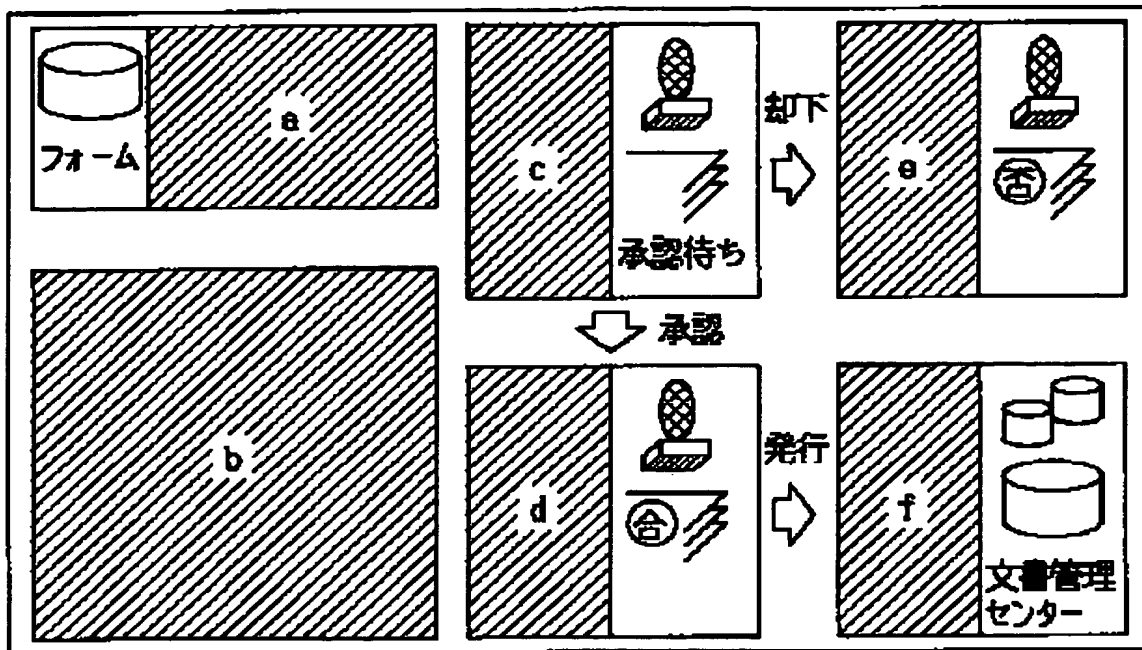
[Drawing 6]



[Drawing 7]

1	リソース名	: 出張報告書
	参照リソース	: resources/文書管理センター/フォーム/出張報告書
	配置位置	: (x1, y1)
	領域	: a
2	リソース名	: 研究報告書
	参照リソース	: resources/文書管理センター/フォーム/研究報告書
	配置位置	: (x2, y2)
	領域	: a
3	リソース名	: Aoki1
	参照リソース	: resources/システム研究部/研究報告書ドラフト/Aoki1
	配置位置	: (x3, y3)
	領域	: b

[Drawing 8]



[Drawing 9]

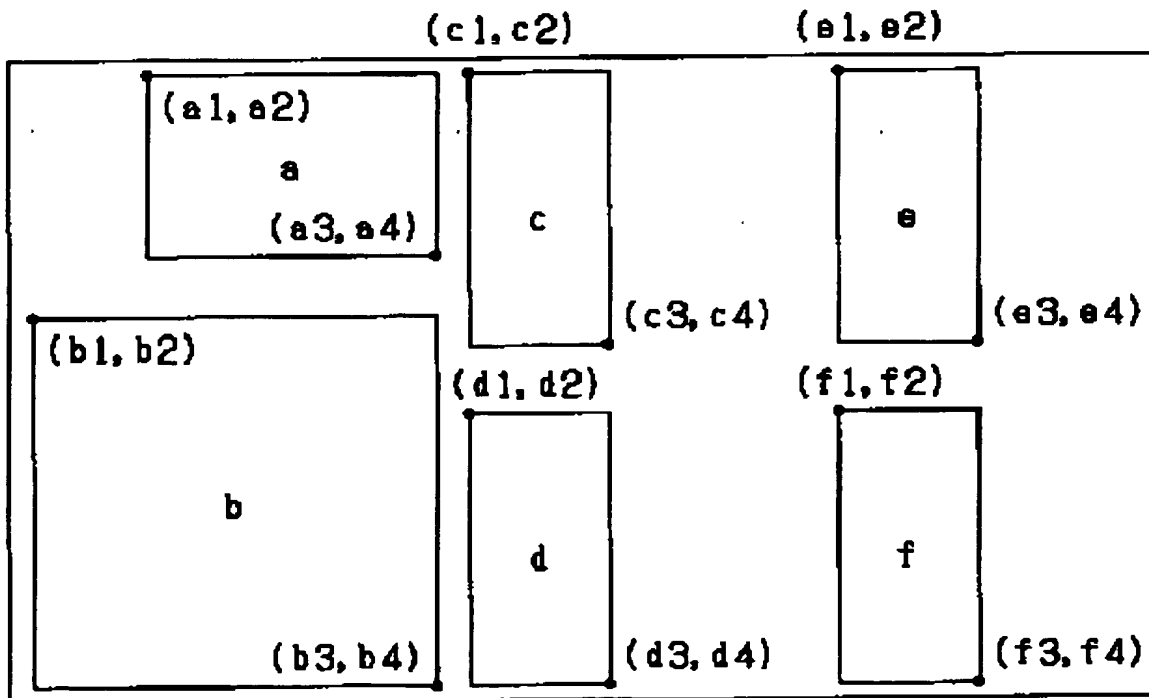
1	領域ID	:	a
	位置	:	(a1, a2) (a3, a4)
	表示権	:	全員
	配置権	:	文書管理センターのメンバー
	プログラム	:	
2	領域ID	:	b
	位置	:	(b1, b2) (b3, b4)
	表示権	:	リソース作成者
	配置権	:	全員
	プログラム	:	
3	領域ID	:	c
	位置	:	(c1, c2) (c3, c4)
	表示権	:	リソース作成者、または、作成者の上司
	配置権	:	リソース作成者
	プログラム	:	send-mail ( 件名 : 報告書の承認願い 送信元 : #ワークスペース 送信先 : #配置リソース作成者の上司 メッセージ: 報告書の承認を求めます)
4	領域ID	:	d
	位置	:	(d1, d2) (d3, d4)
	表示権	:	リソース作成者、または、作成者の上司
	配置権	:	リソース作成者の上司
	プログラム	:	send-mail ( 件名 : 報告書の承認結果 送信元 : #ワークスペース 送信先 : #配置リソース作成者 メッセージ: 報告書は承認されました)

[Drawing 10]

5	領域ID	: e
	位置	: (e1, e2) (e3, e4)
	表示権	: リソース作成者、または、作成者の上司
	配置権	: リソース作成者の上司
	プログラム	: send-mail ( 件名 : 報告書の承認結果 送信元 : #ワークスペース 送信先 : #配置リソース作成者 メッセージ: 報告書は承認されませんでした)

6	領域ID	: f
	位置	: (f1, f2) (f3, f4)
	表示権	: リソース作成者、または、作成者の上司
	配置権	: リソース作成者、または、作成者の上司
	プログラム	: store-resource ( 格納対象: #配置リソース 格納先 : resources/文書管理センター /発行報告書/)

[Drawing 11]



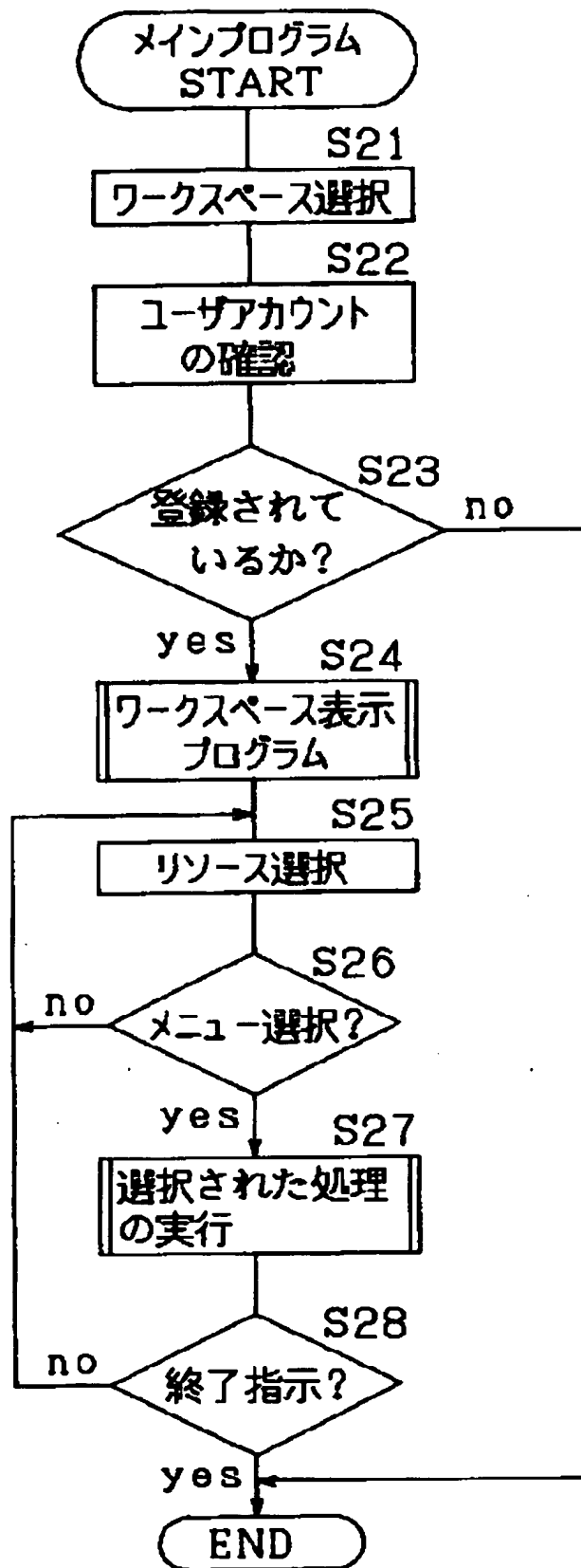
[Drawing 12]

1	部門	: システム研究部
	部門長	: Chiba
	メンバー	: Aoki, Baba, Chiba
2	部門	: 情報管理センター
	部門長	: Fujii
	メンバー	: Doi, Endo, Fujii

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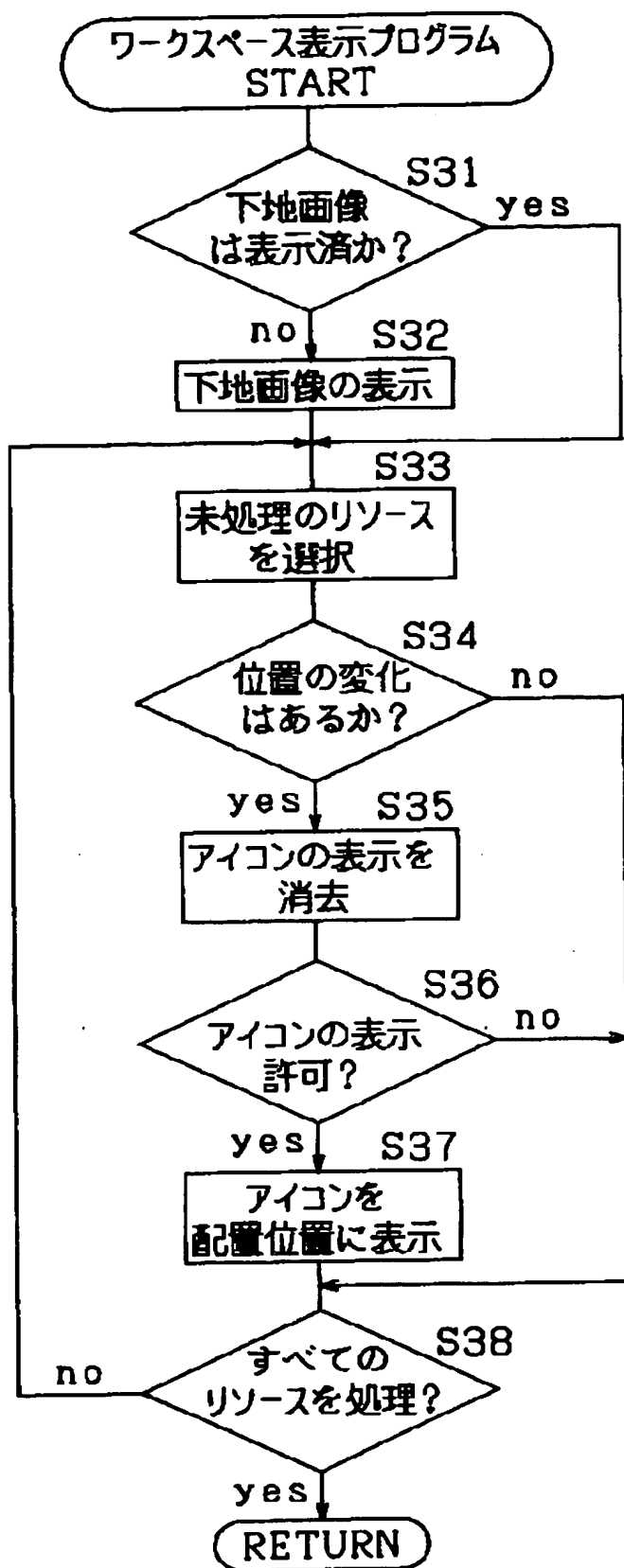
[Drawing 13]



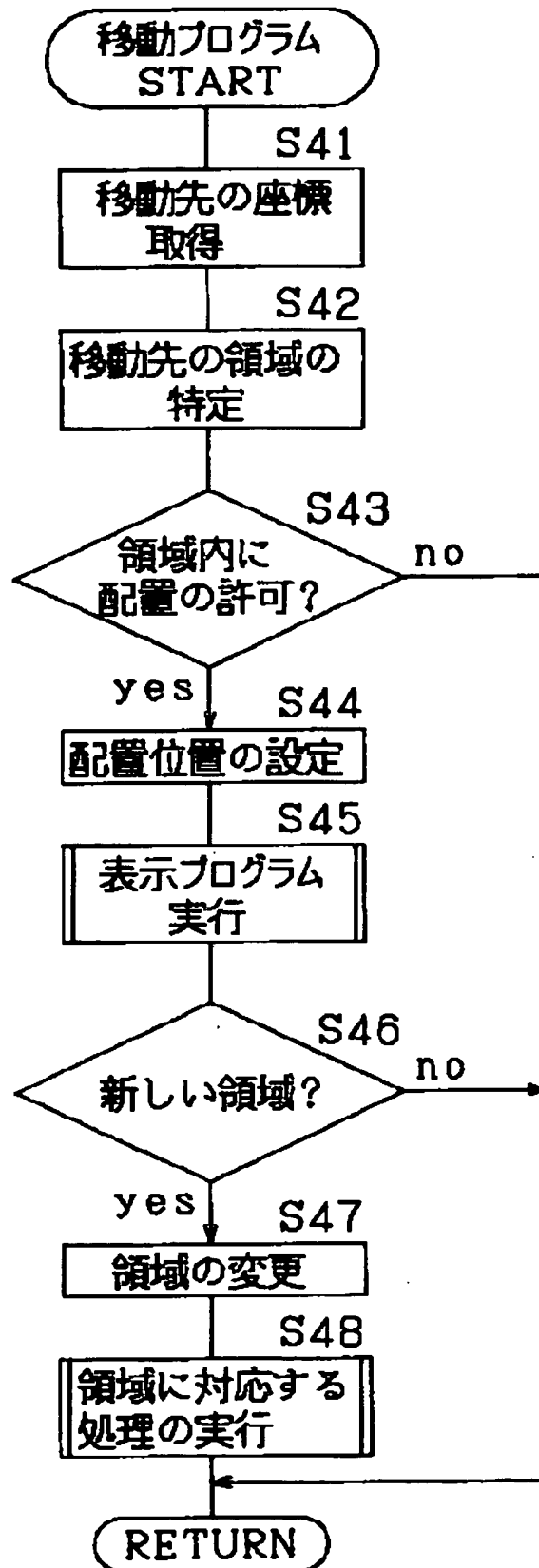




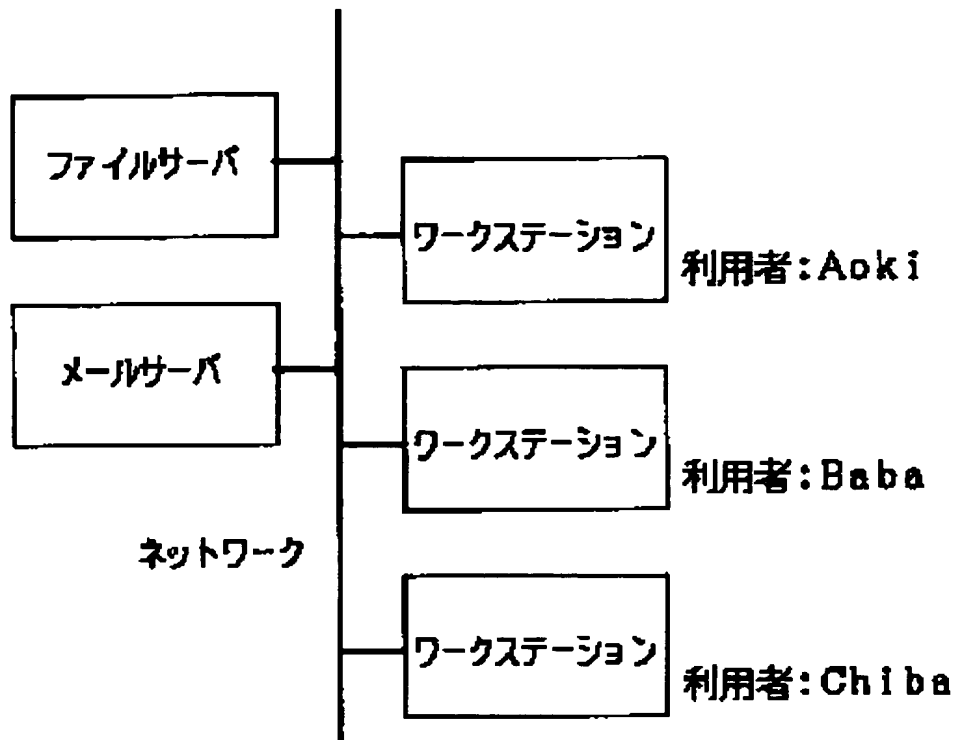
[Drawing 14]



[Drawing 15]



[Drawing 16]



[Drawing 17]

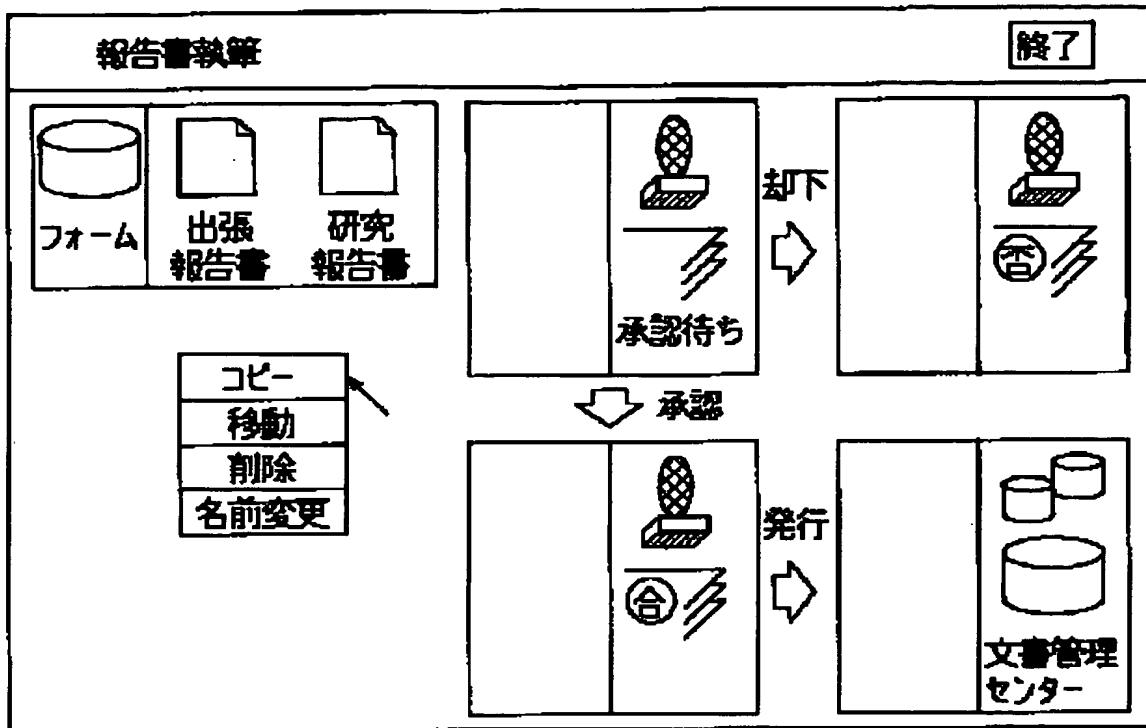
(A)

command tool	終了
>open-workspace /workspaces/報告書執筆	

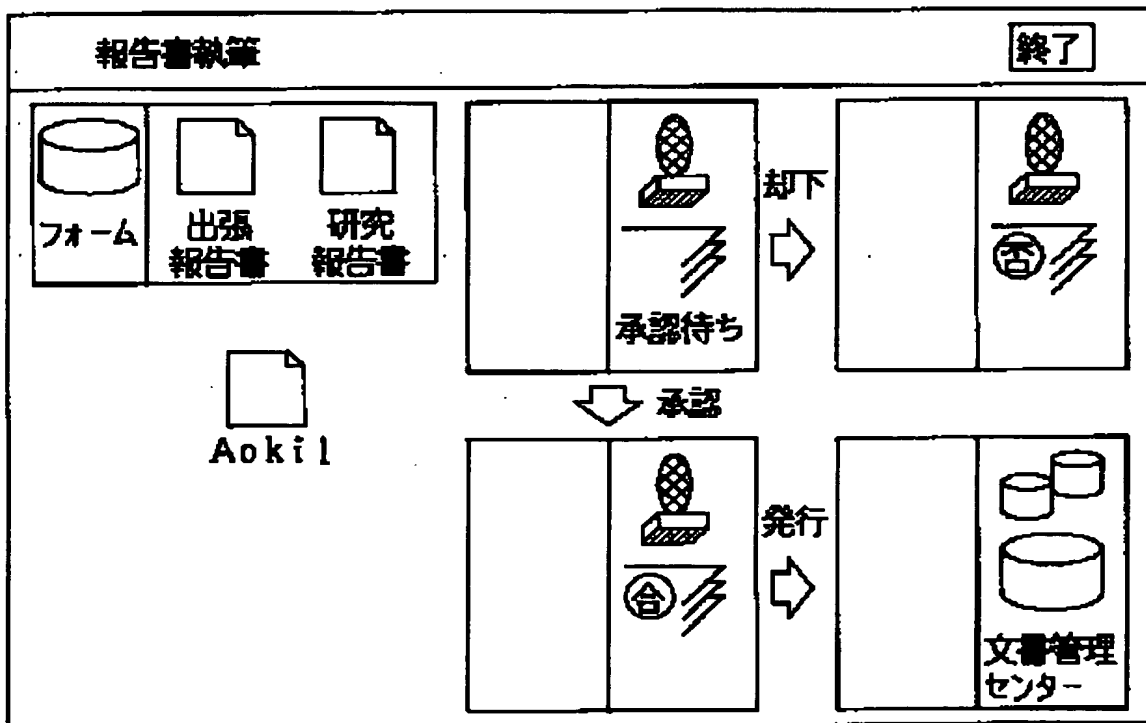
(B)

あなたの名前とパスワードを入力して下さい		
名前	<input type="text" value="Aoki"/>	
パスワード	<input type="password" value="*****"/>	<input type="button" value="確認"/>

[Drawing 18]



[Drawing 19]

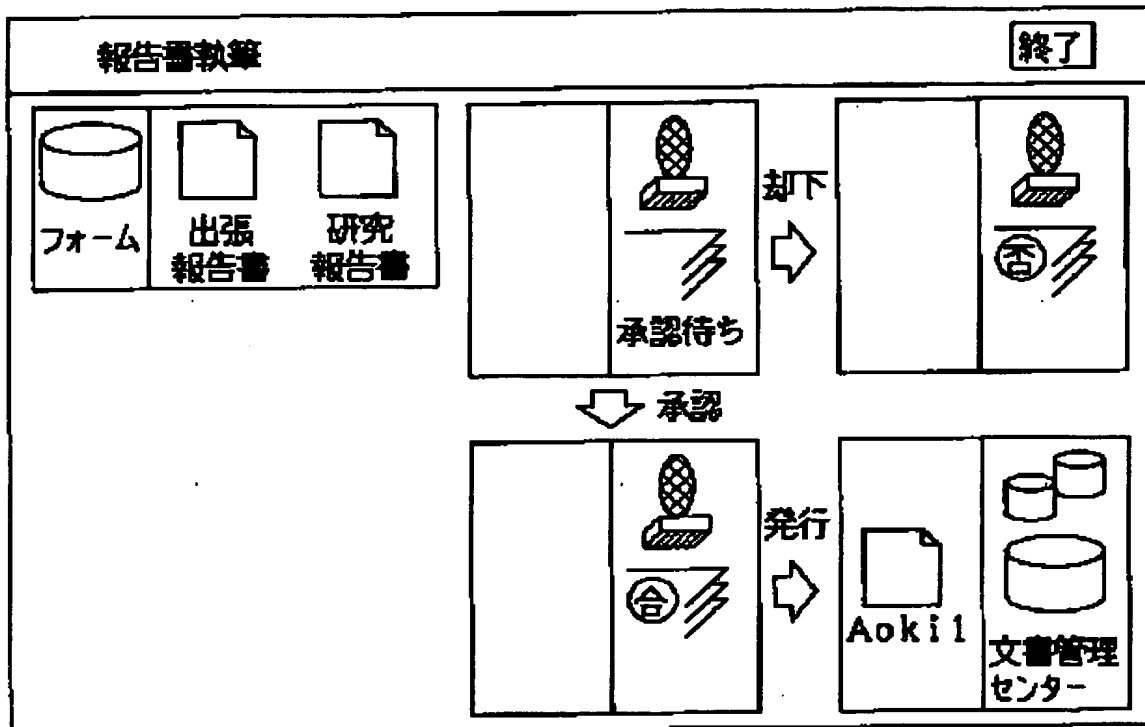


[Drawing 20]

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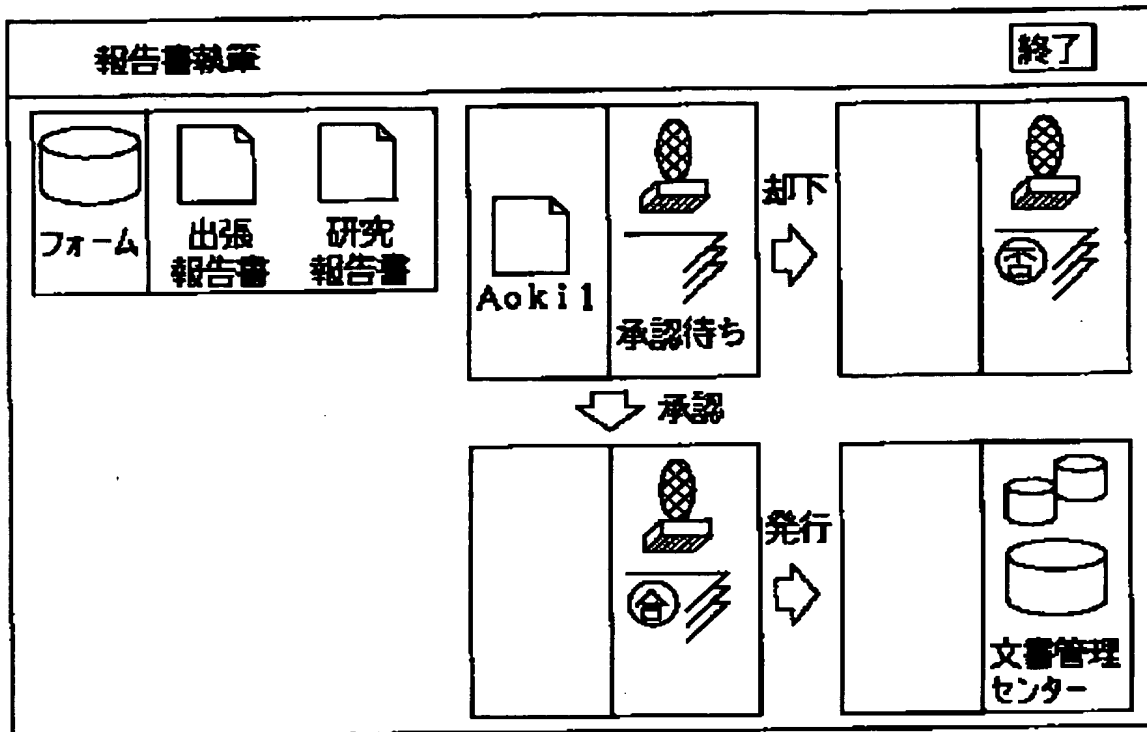
(root)/
  resources/
    システム研究部/
      報告書ドラフト/
        Aoki1
      特許ドラフト/
    文書管理センター/
      フォーム/
        出張報告書
        研究報告書
      発行報告書/
        出願特許/
  
```

[Drawing 24]



[Drawing 21]

(A)



(B)

mail reader (Chiba)		終了
送信日時:	94/5/11 10:30	
送信元:	/workspaces/報告書執筆	
送信先:	Chiba	
件名:	報告書の承認願い	
メッセージ:	報告書の承認を求めます。	

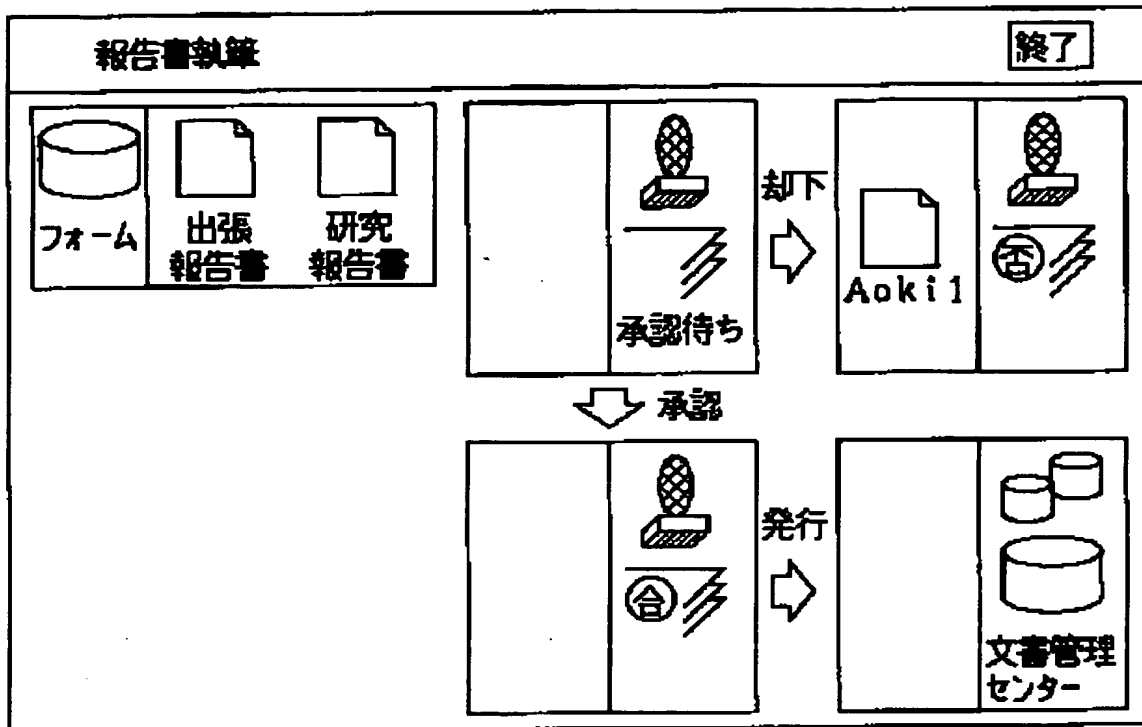


[Drawing 22]

Intentionally Blank

[Drawing 23]

(A)



(B)

mail reader (Aoki)	
送信日時:	94/5/11 14:20
送信元:	/workspaces/報告書執筆
送信先:	Aoki
件名:	報告書の承認結果
メッセージ:	報告書は承認されませんでした。

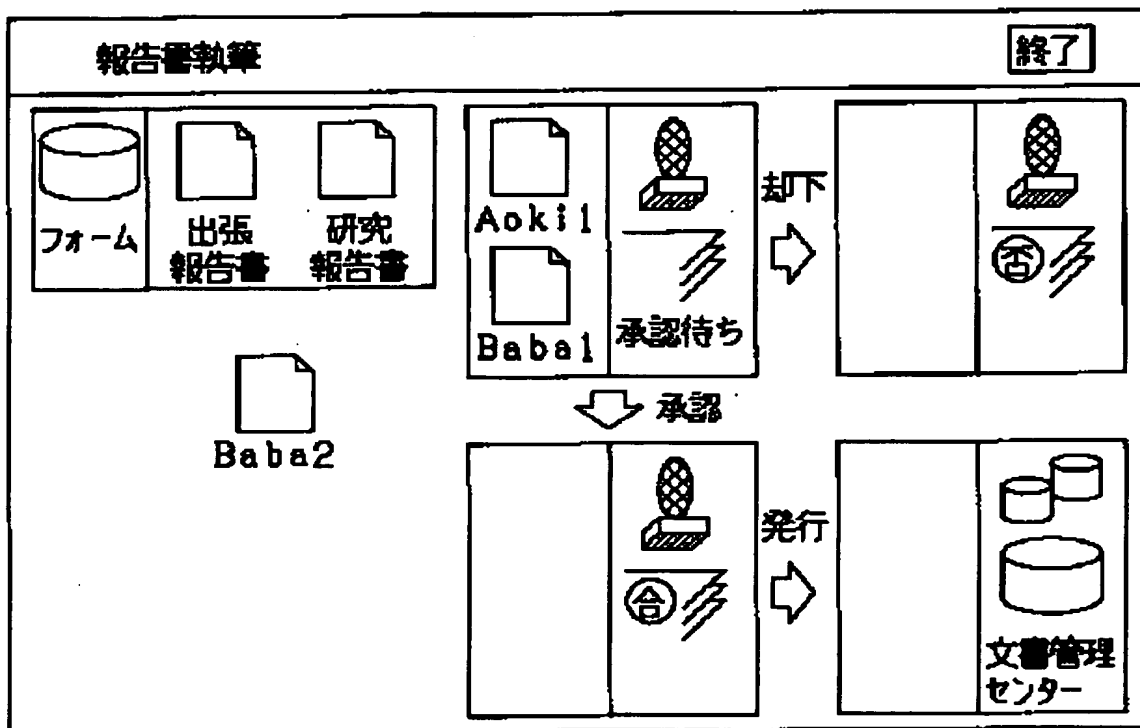
[Drawing 25]

```

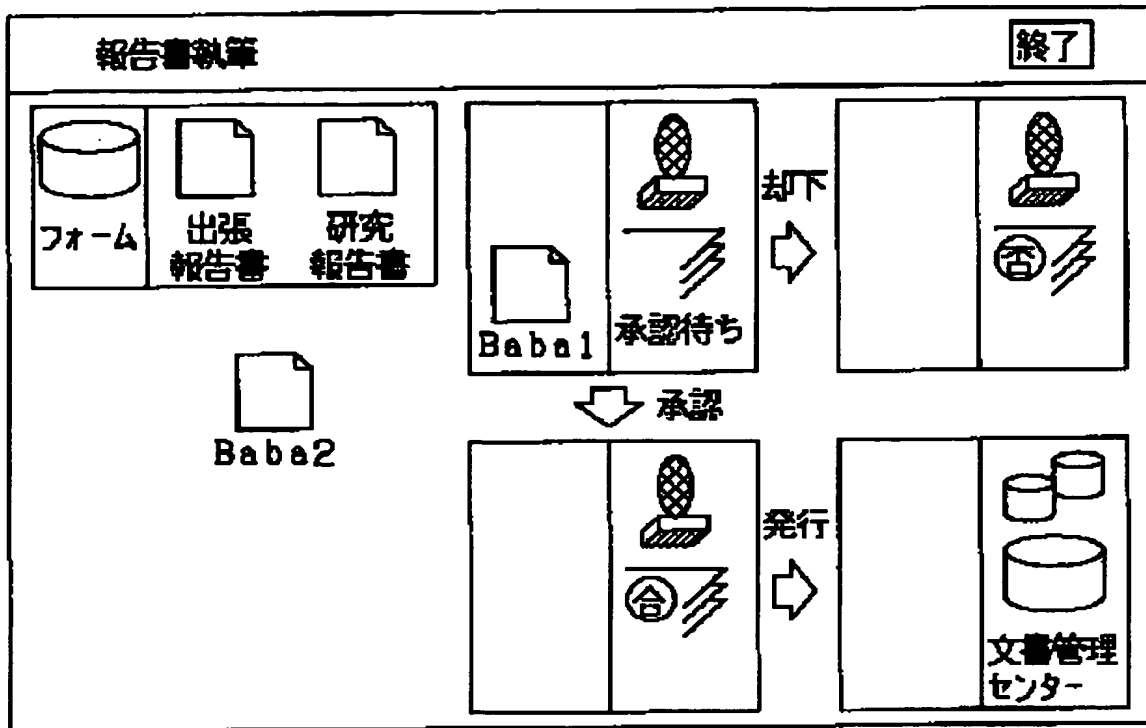
(root)/
  resources/
    システム研究部/
      報告書ドラフト/
      特許ドラフト/
    文書管理センター/
      フォーム/
        出張報告書
        研究報告書
      発行報告書/
        Aoki1
      出願特許/

```

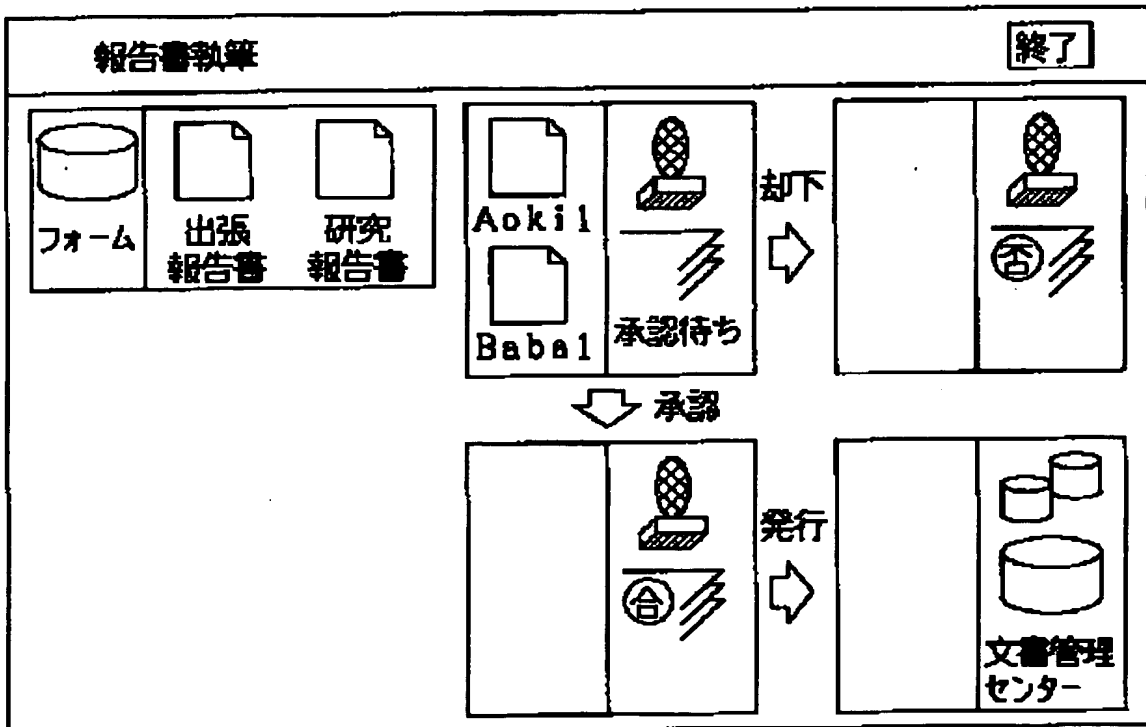
[Drawing 26]



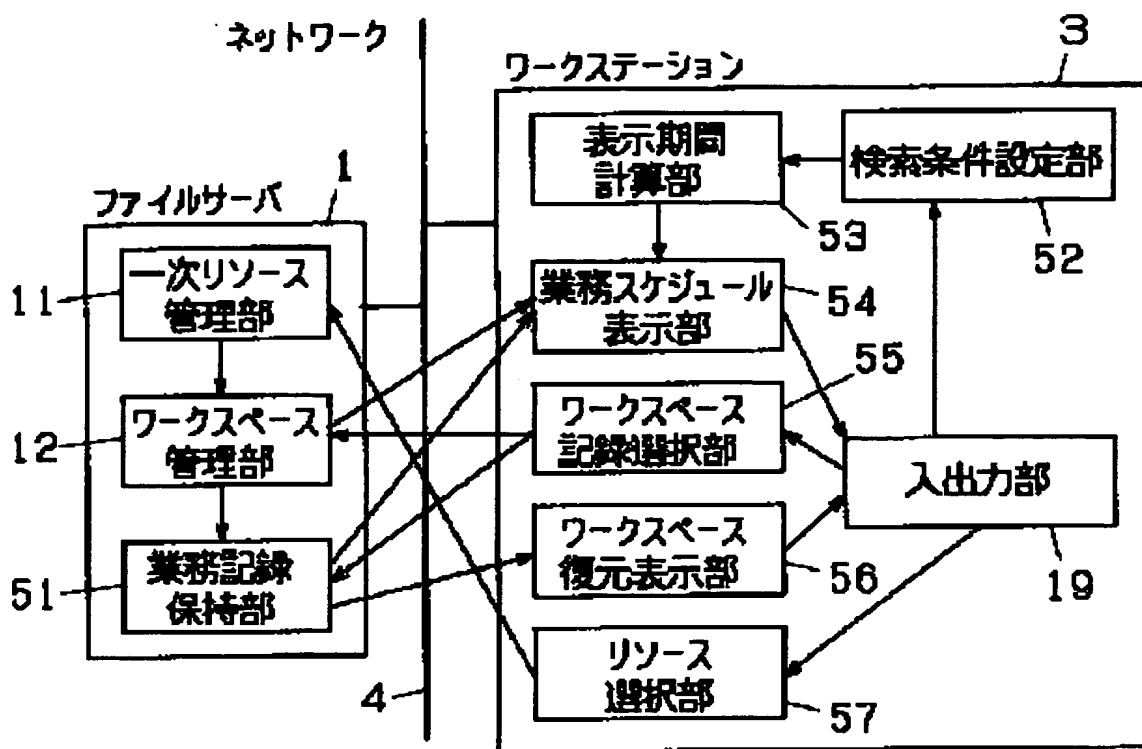
[Drawing 27]



[Drawing 28]



[Drawing 29]



[Drawing 30]

種別	:	予定
開始日時	:	94/5/4 9:00
終了日時	:	94/5/12 12:00

種別	:	予定
開始日時	:	94/5/14 9:00
終了日時	:	94/5/16 17:30

種別	:	実績
開始日時	:	94/5/9 9:00
終了日時	:	94/5/9 17:30

種別	:	実績
開始日時	:	94/5/12 9:00
終了日時	:	94/5/12 12:00

種別	:	実績
開始日時	:	94/5/14 13:00
終了日時	:	94/5/14 17:30

[Drawing 31]

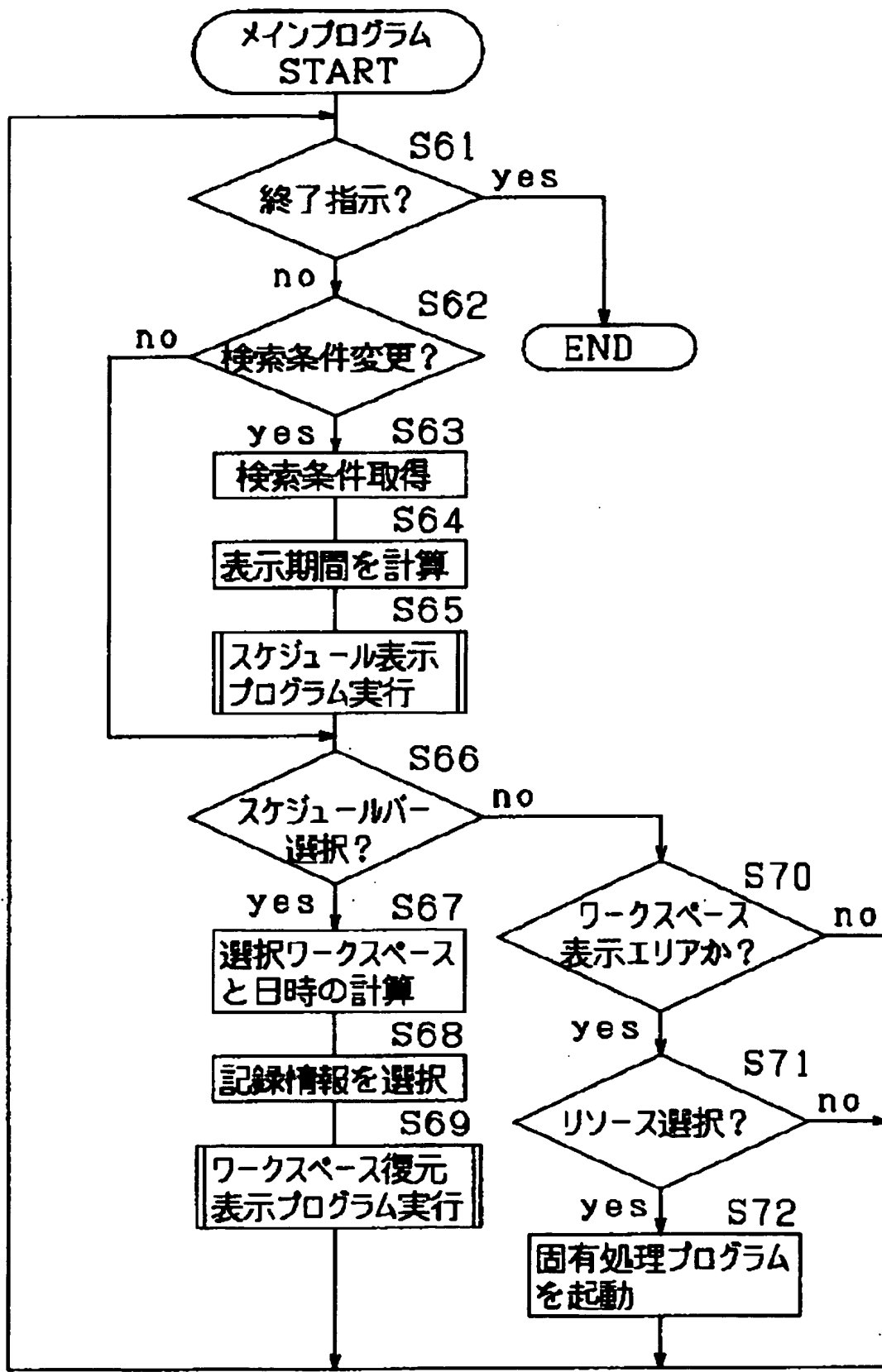
ワークスペースID :	/workspaces/先行技術調査
記録日時 :	94/5/12 10:00
下地面像 :	(記録日時における下地面像)
リソースリスト :	(記録日時におけるリソースリスト)
メッセージ :	調査完了

ワークスペースID :	/workspaces/先行技術調査
記録日時 :	94/5/14 13:00
下地面像 :	(記録日時における下地面像)
リソースリスト :	(記録日時におけるリソースリスト)
メッセージ :	調査2に着手

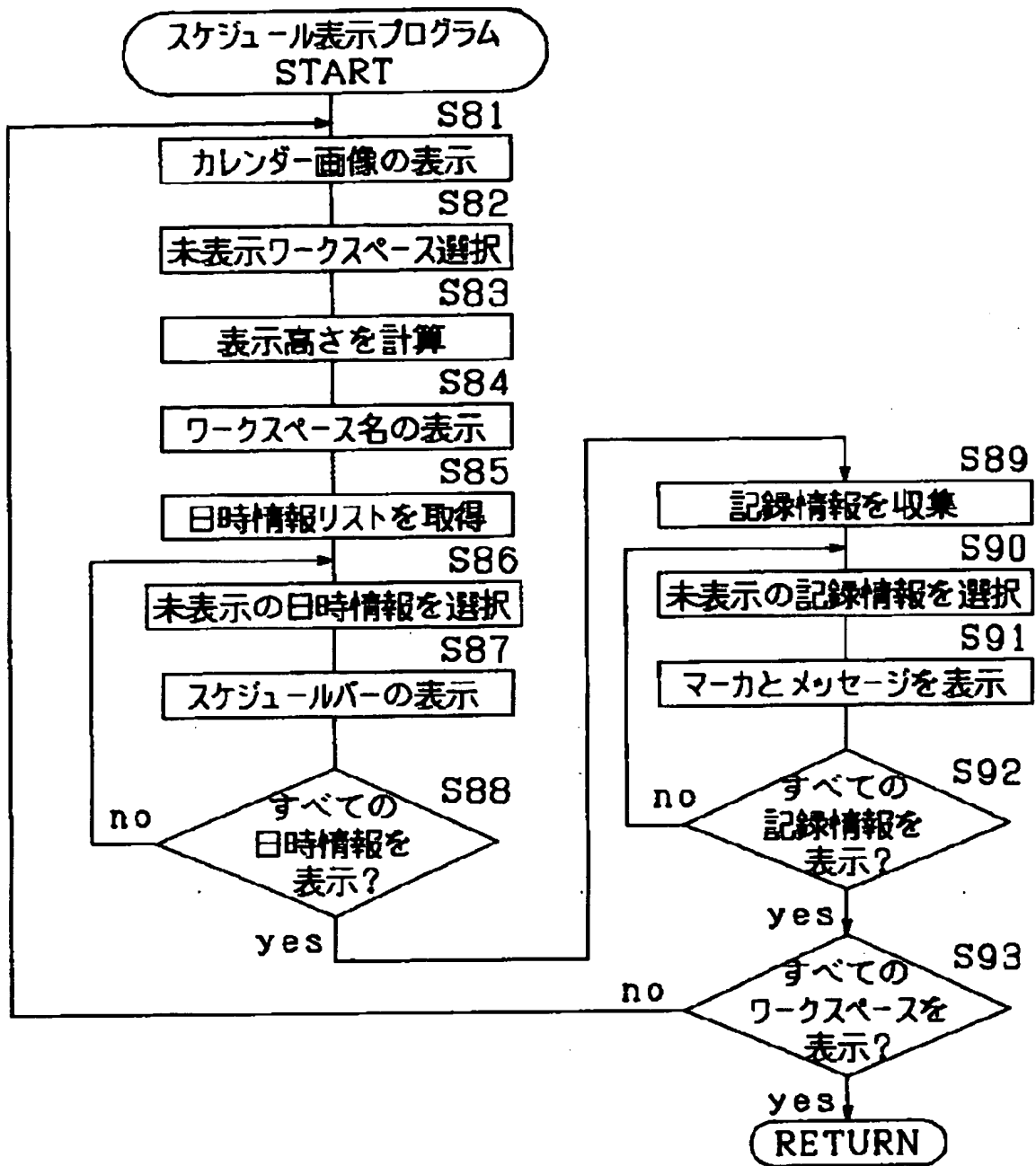
ワークスペースID :	/workspaces/報告書執筆
記録日時 :	94/5/11 10:00
下地面像 :	(記録日時における下地面像)
リソースリスト :	(記録日時におけるリソースリスト)
メッセージ :	執筆完了

ワークスペースID :	/workspaces/特許執筆
記録日時 :	94/5/11 14:00
下地面像 :	(記録日時における下地面像)
リソースリスト :	(記録日時におけるリソースリスト)
メッセージ :	特許1に着手

[Drawing 32]

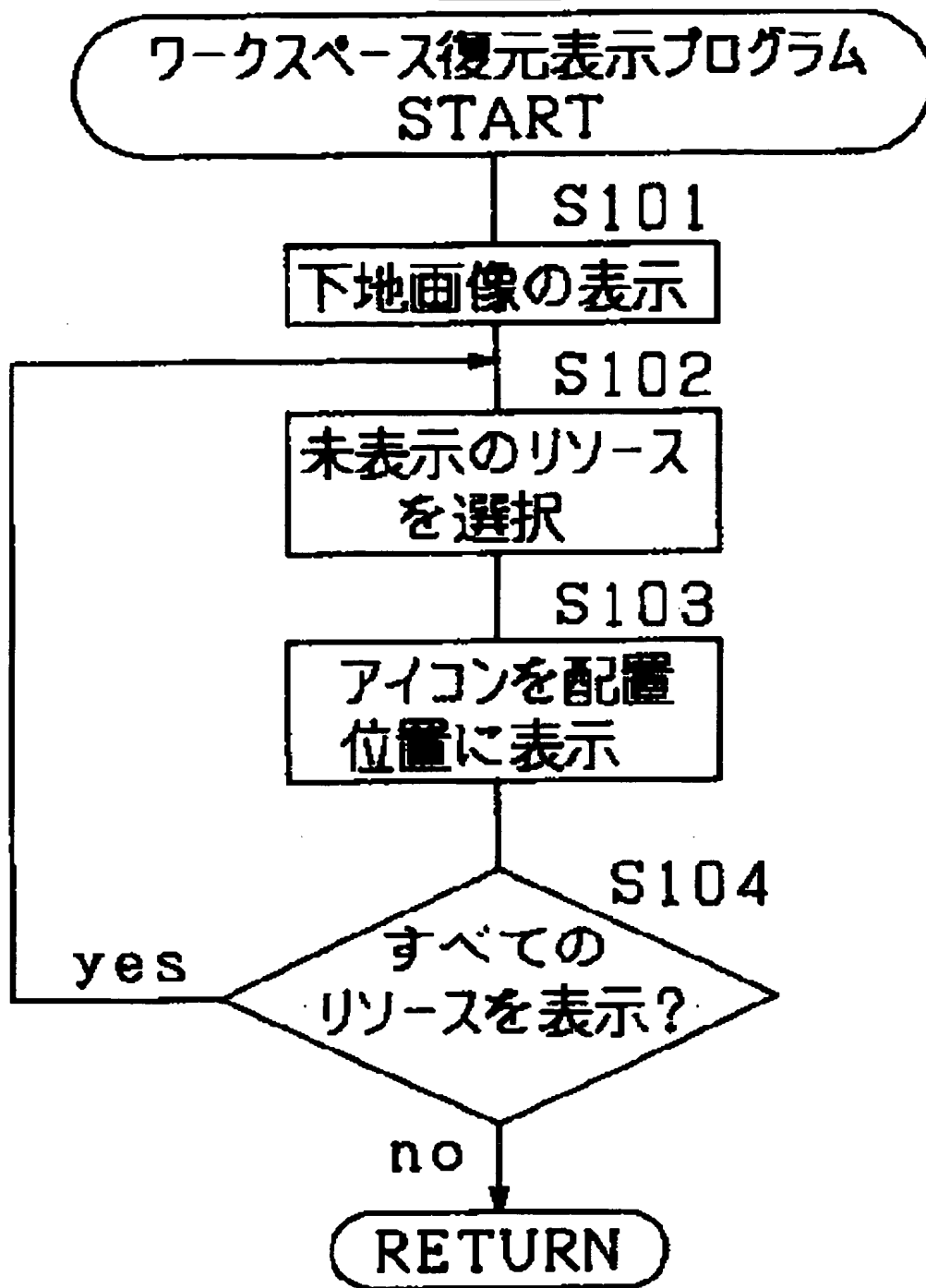


[Drawing 33]

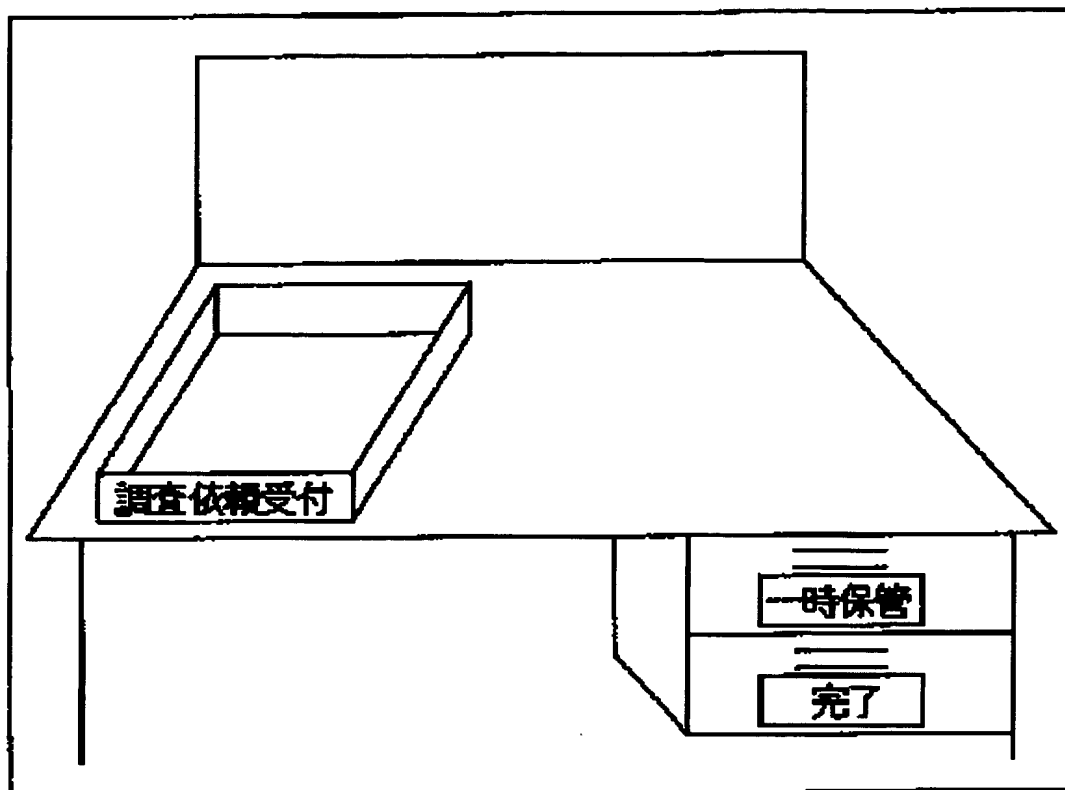




[Drawing 34]

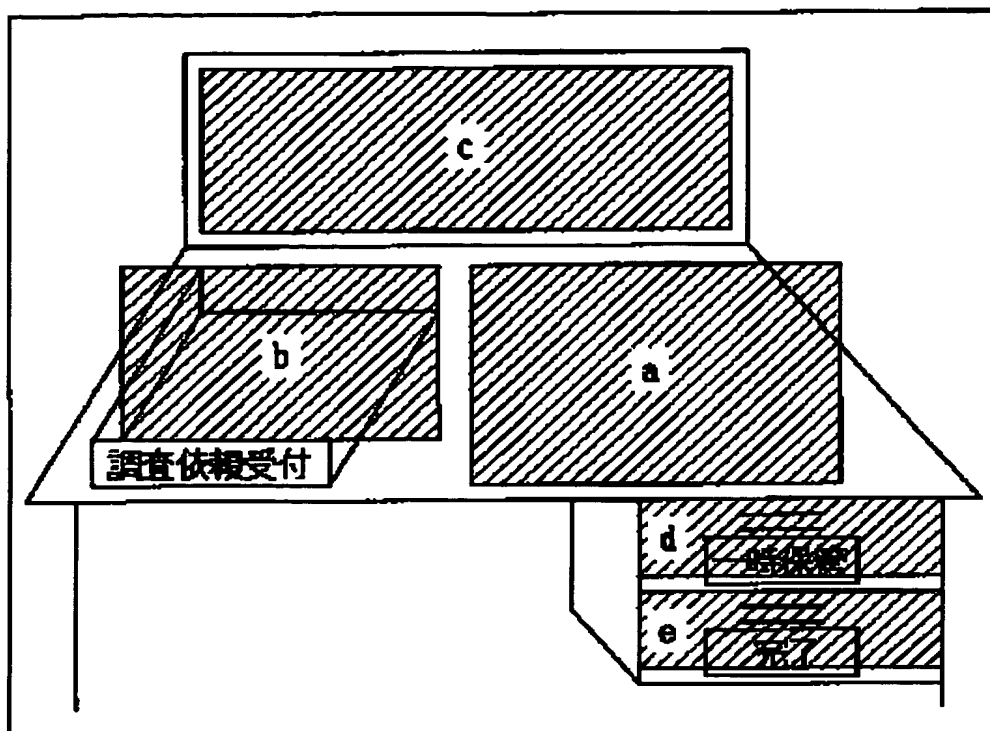


[Drawing 35]

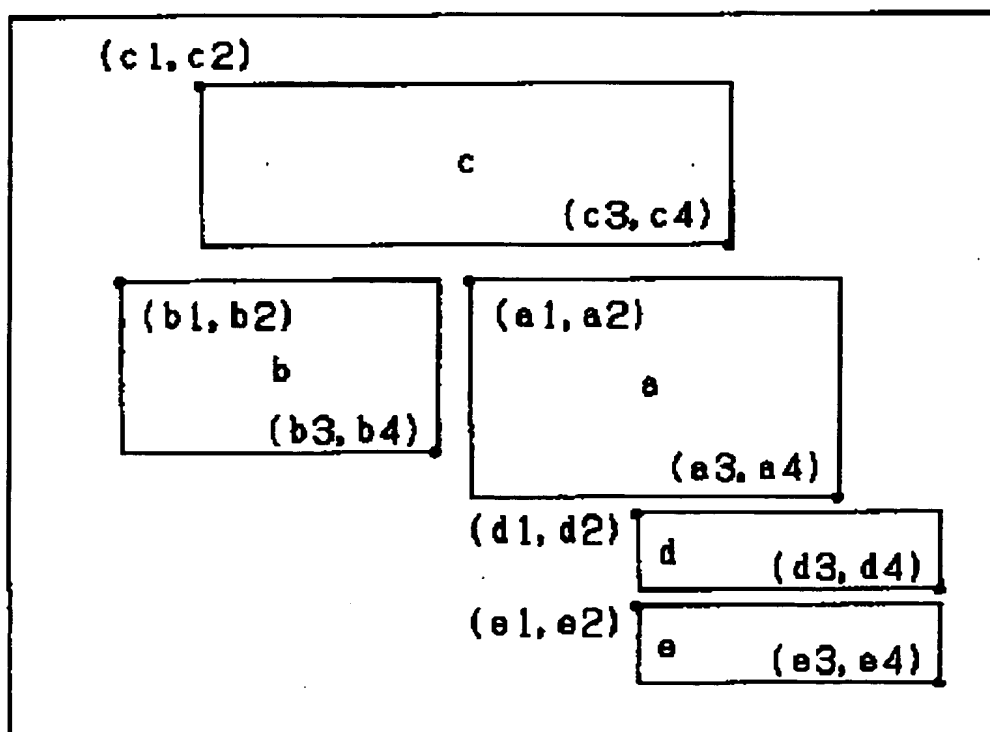


[Drawing 36]

(A)



(B)



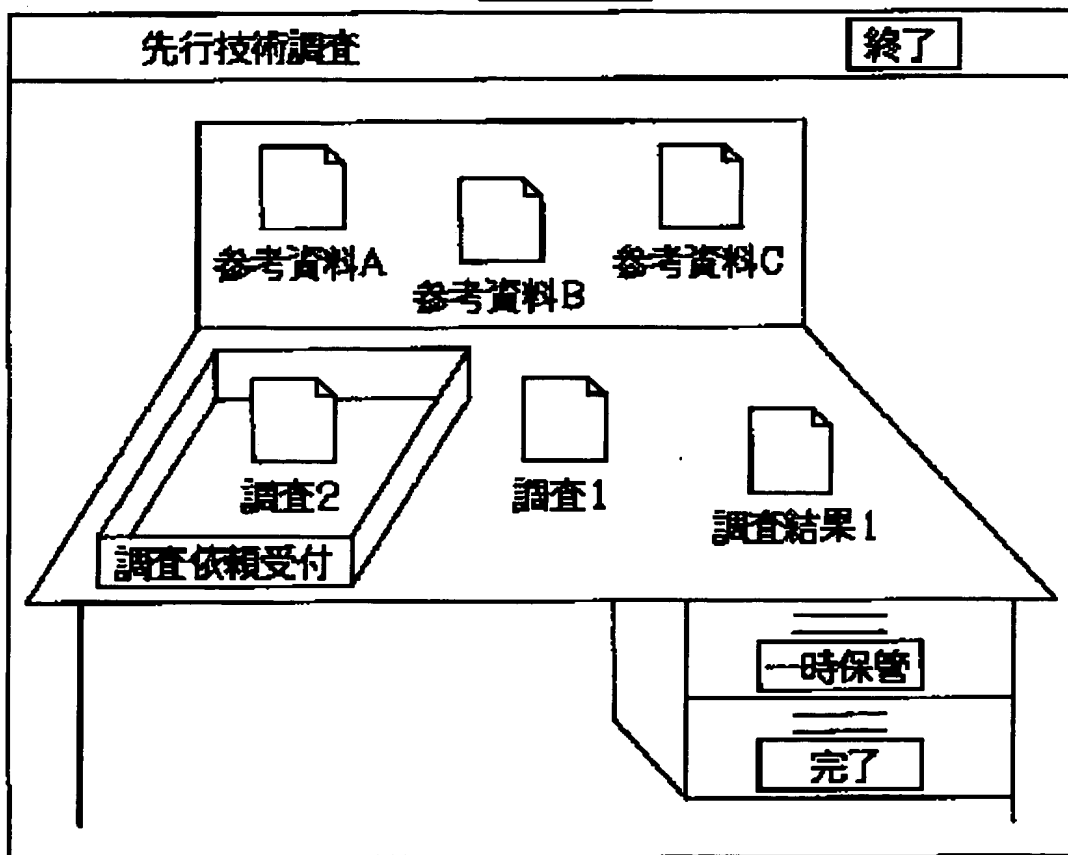
[Drawing 37]

1	領域ID	:	a
	位置	:	(a1, a2) (a3, a4)
	表示権	:	リソース作成者
	配置権	:	リソース作成者
	プログラム	:	recoord-workspace ( メッセージ: (#配置リソース名) に着手 )
2	領域ID	:	b
	位置	:	(b1, b2) (b3, b4)
	表示権	:	リソース作成者
	配置権	:	リソース作成者
	プログラム	:	
3	領域ID	:	c
	位置	:	(c1, c2) (c3, c4)
	表示権	:	リソース作成者
	配置権	:	リソース作成者
	プログラム	:	
4	領域ID	:	d
	位置	:	(d1, d2) (d3, d4)
	表示権	:	リソース作成者
	配置権	:	リソース作成者
	プログラム	:	store-resource ( 領域: a 移動先: /resources/一次保存/作業領域) store-resource ( 領域: c 移動先: /resources/一次保存/参照領域)

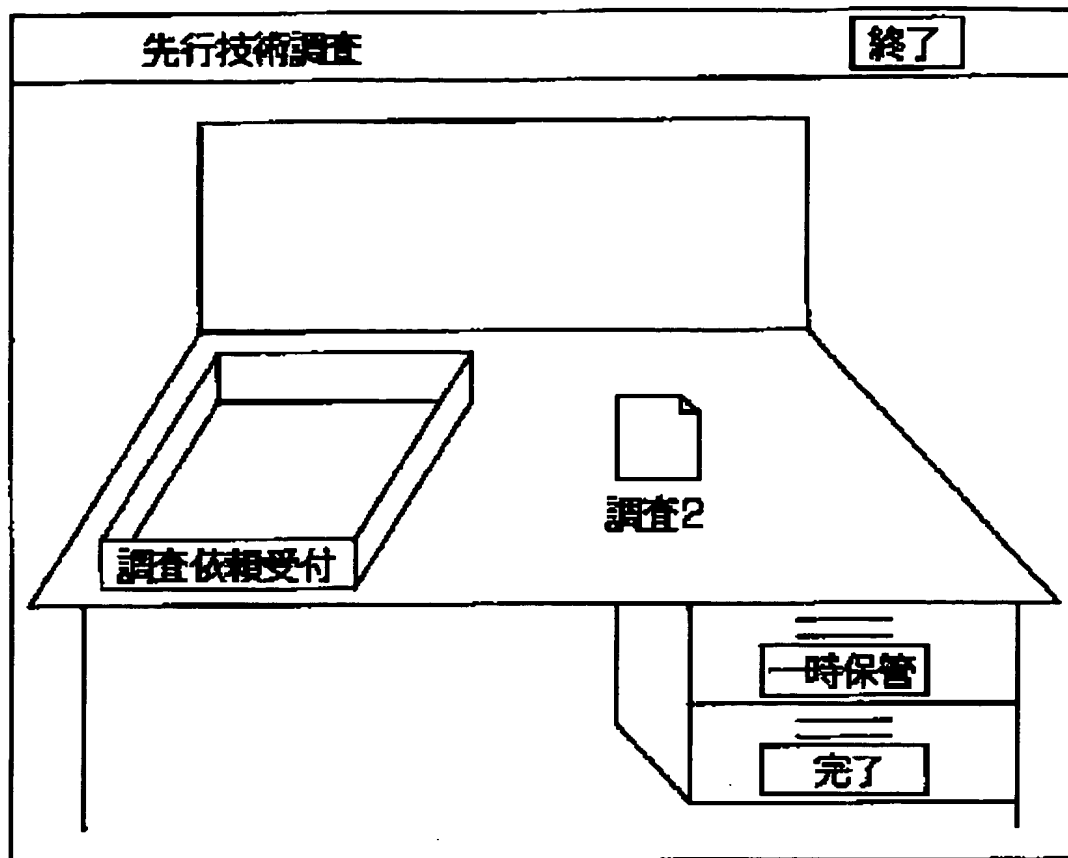
[Drawing 38]

5 領域ID	: e
位置	: (e1, e2) (e3, e4)
表示権	: リソース作成者
配置権	: リソース作成者
プログラム	: record-workspace ( メッセージ: 調査完了 ) store-resource ( 領域: a 移動先: /resources/文書管理センター/調査結果) delete-resource ( 領域: c )

[Drawing 39]

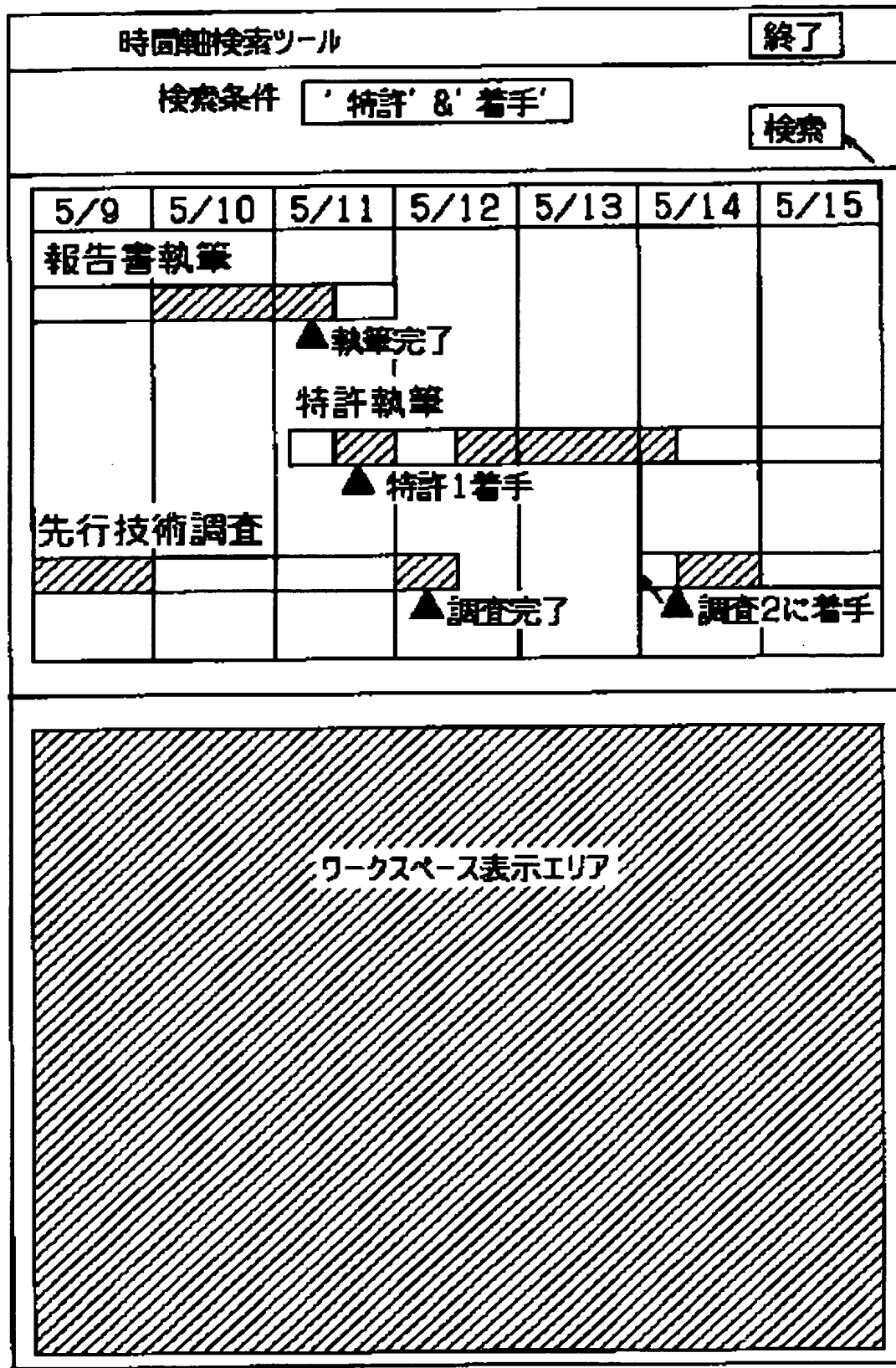


[Drawing 40]



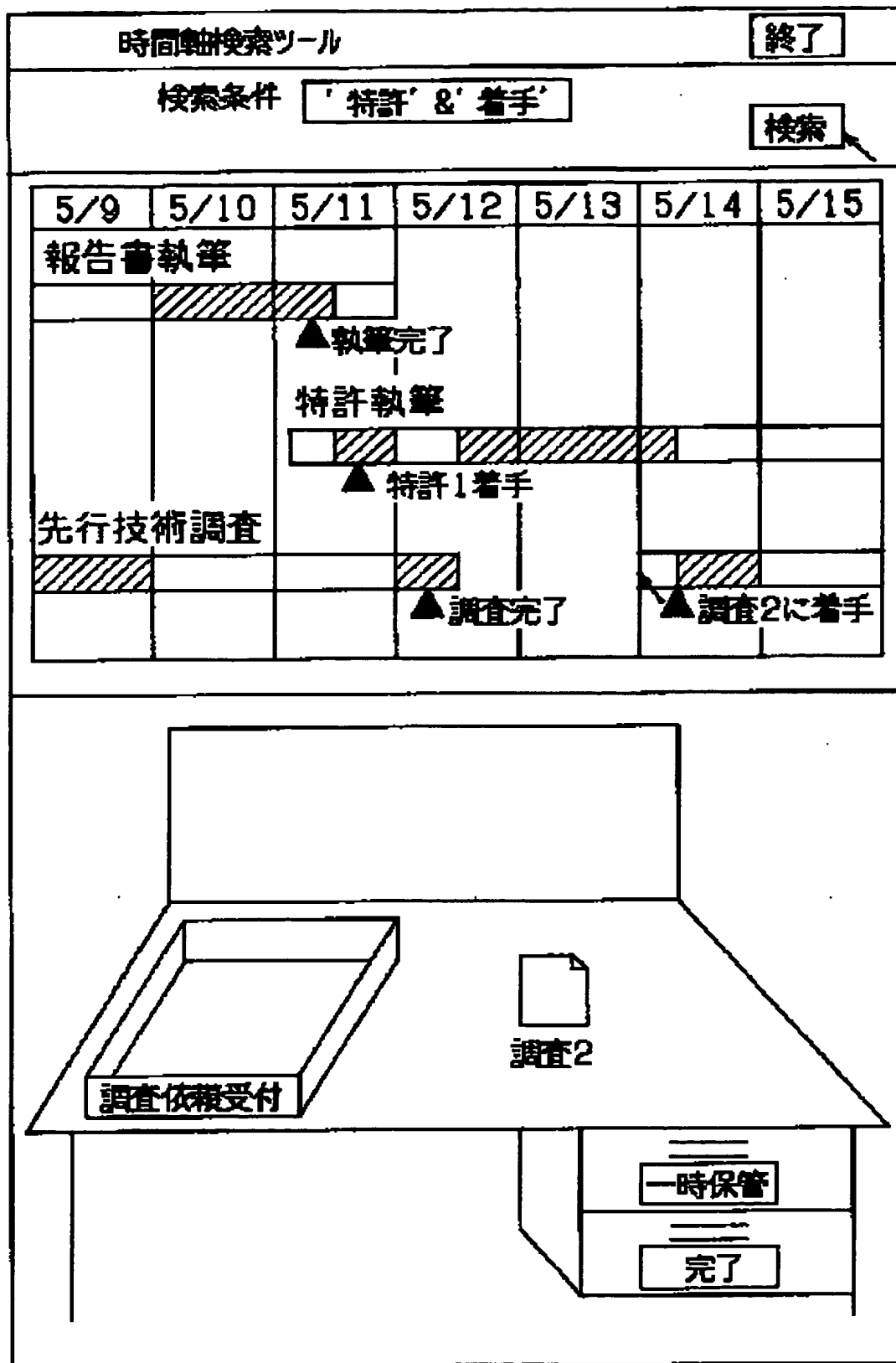
時間軸検索ツール		終了
検索条件	' 特許 ' & ' 着手 '	検索
<div>カレンダー表示エリア</div>		
<div>ワークスペース表示エリア</div>		

[Drawing 42]

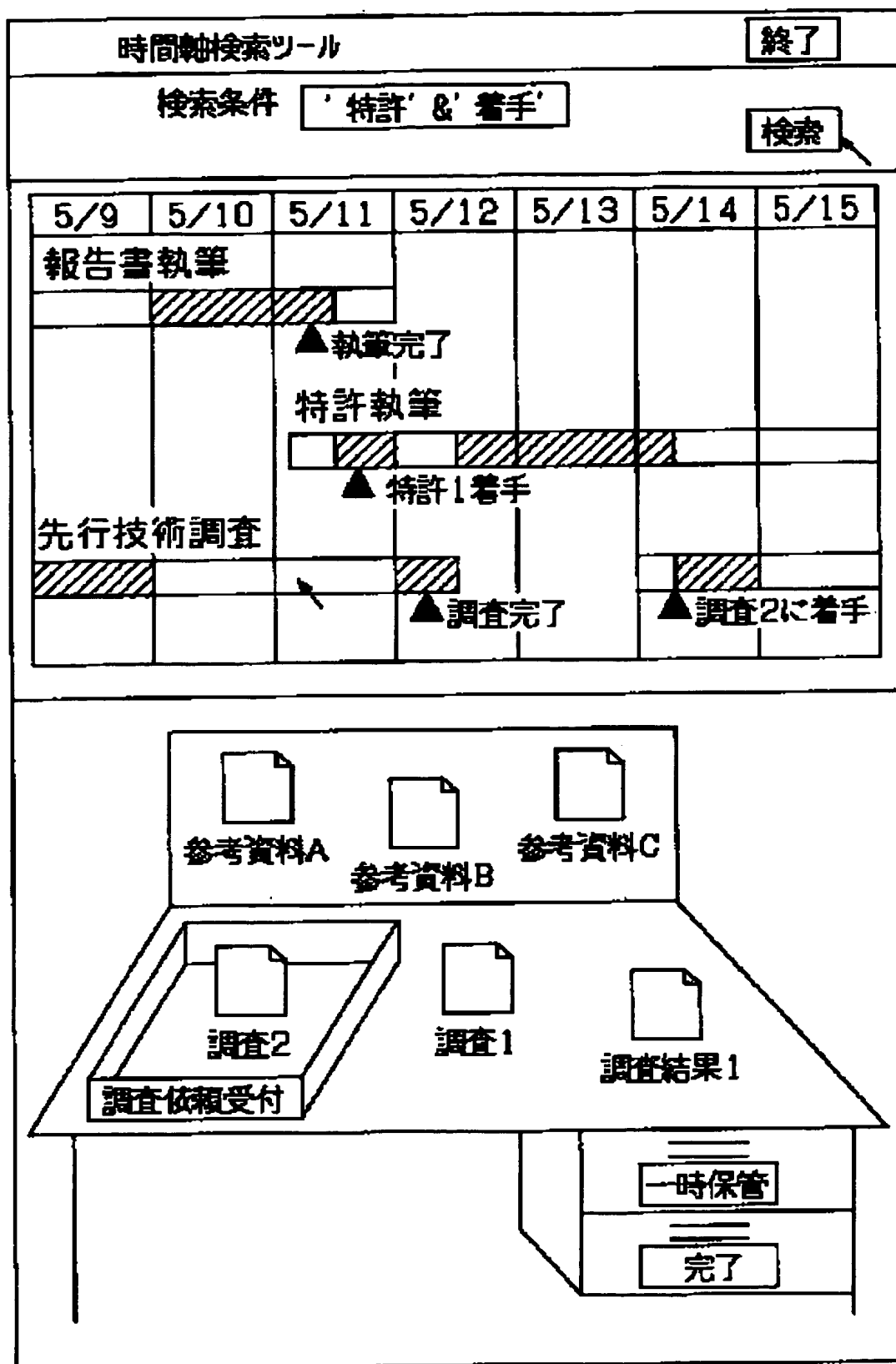




[Drawing 43]

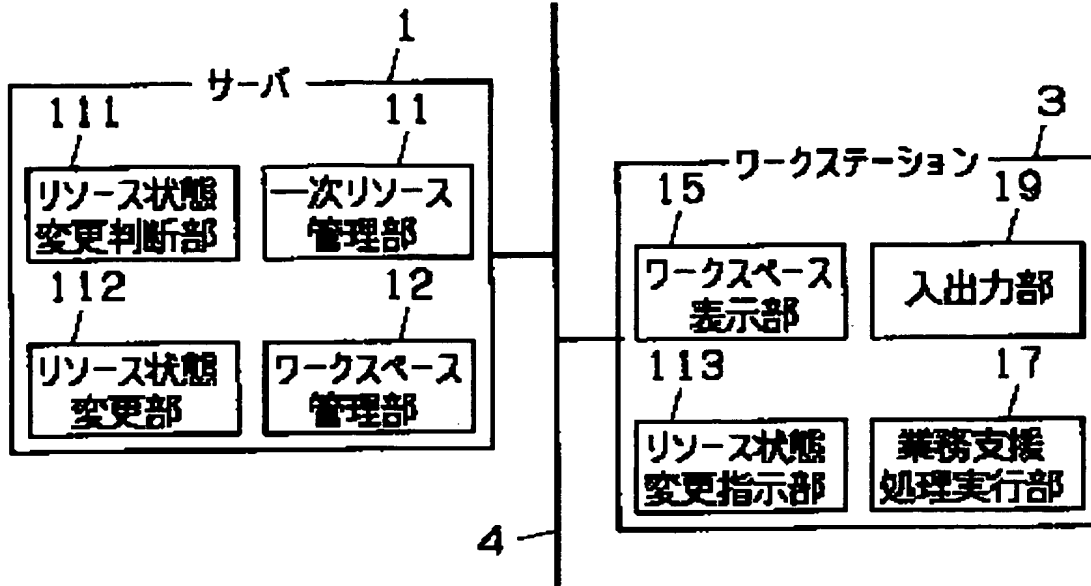


**[Drawing 44]**

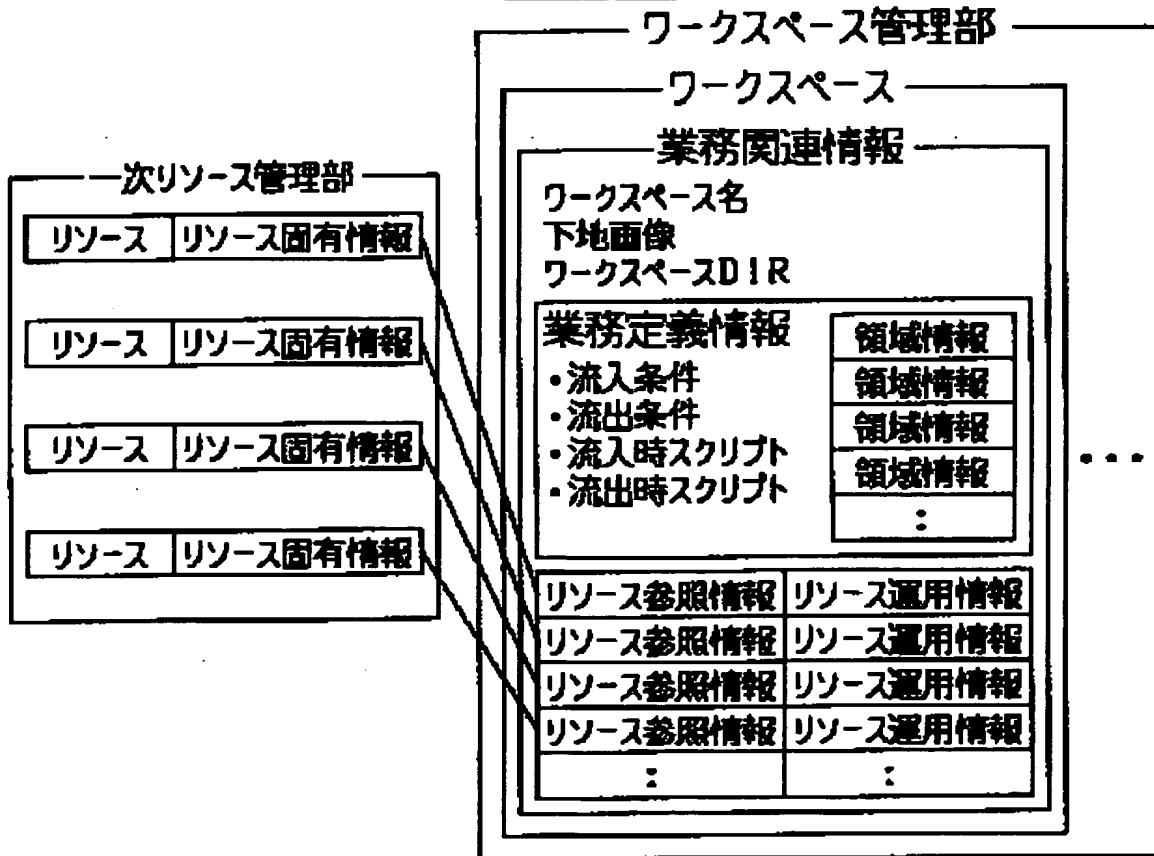


[Drawing 45]

ネットワーク



[Drawing 46]



[Drawing 47]

ワークスペース名	定型処理ワークスペース
下地画像	null
業務定義情報	(図48参照)
リソースリスト	(図50参照)
ワークスペースDIR	/workspace/定型業務

[Drawing 48]

流入リソース条件	#リファレンスタイプ:フォーム
流出リソース条件	#リファレンスタイプ:フォーム
流入可能WS条件	null
流出可能WS条件	null
領域情報リスト	(図49参照)
流入時業務支援処理プログラム	<pre> if (#リソース名=='*質問*') then(     send-mail    (件名:質問,                   送信元:定型処理ワークスペース,                   送信先:Aoki,                   メッセージ:#作成者 からの                       #リソース名 に関する質問です);     change-attr (リソース:#リソース名,                   所属領域:受付ボックス領域);     exit;) else(     send mail    (件名:#リソース名 の処理依頼,                   送信元:定型処理ワークスペース,                   送信先:Aoki,                   メッセージ:#作成者 からの                       #リソース名 に関する依頼です);     change-attr (リソース:#リソース名,                   処理状態:受付ボックス領域);) </pre>
流出時業務支援処理プログラム	null

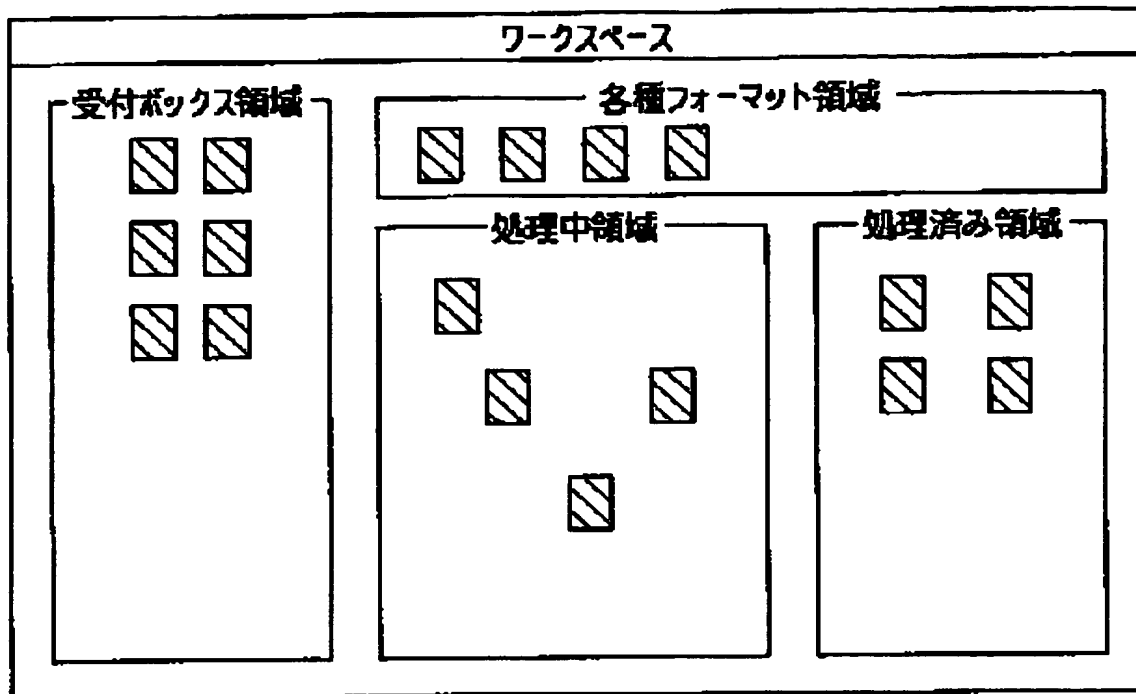
[Drawing 49]

領域名	受付ボックス領域
WS内位置	(5, 30)
流入可能リソース条件	#リファレンスタイプ: フォーム
流出可能リソース条件	null
流入可能領域条件	流入or各種フォーマット領域
流出可能領域条件	処理中領域
流入時業務支援処理プログラム	send-mail (件名: #リソース名 の受付通知 送信元: 定型処理WS, 送信先: Suzuki, メッセージ: リソースが受け付けられました。);
流出時業務支援処理プログラム	send-mail (件名: #リソース名 の処理開始通知 送信元: 定型処理WS, 送信先: #作成者, メッセージ: 処理が受け付けられました。);

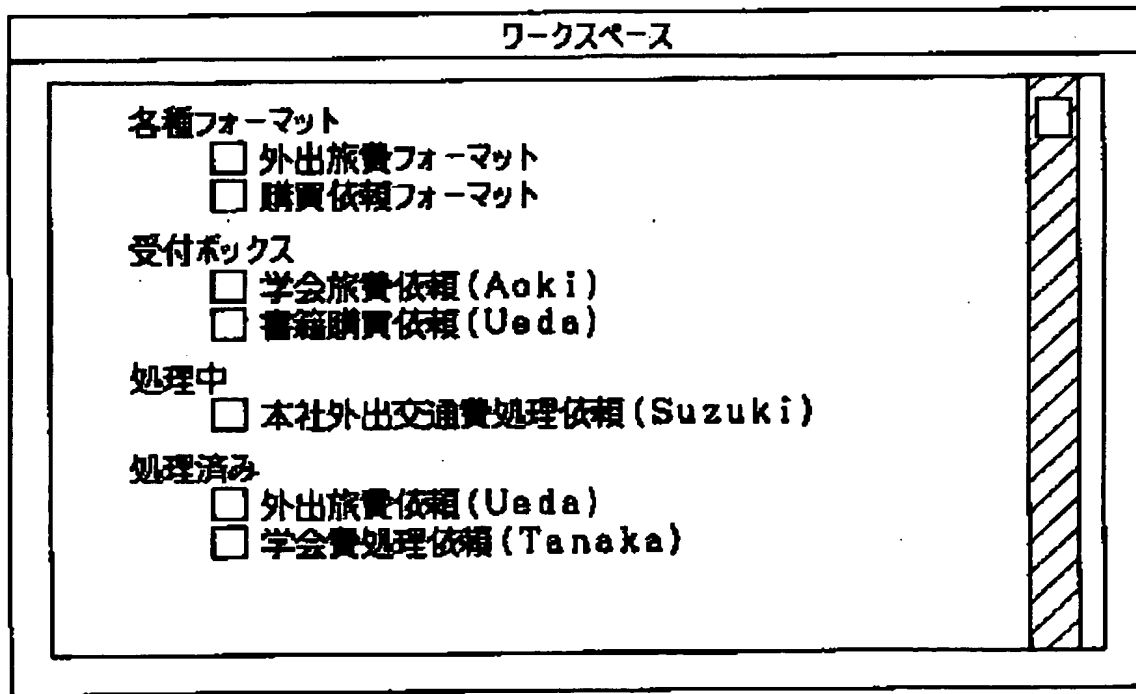
[Drawing 50]

リファレンス名	外出旅費フォーム
リファレンスタイプ	フォーム
所属領域	各種フォーマット領域
承認	null
配置位置	(12, 7)
作成者	Aoki
参照リソースDIR	/resources/form/外出旅費
起動アプリケーション	/resources/bin/TextEdit

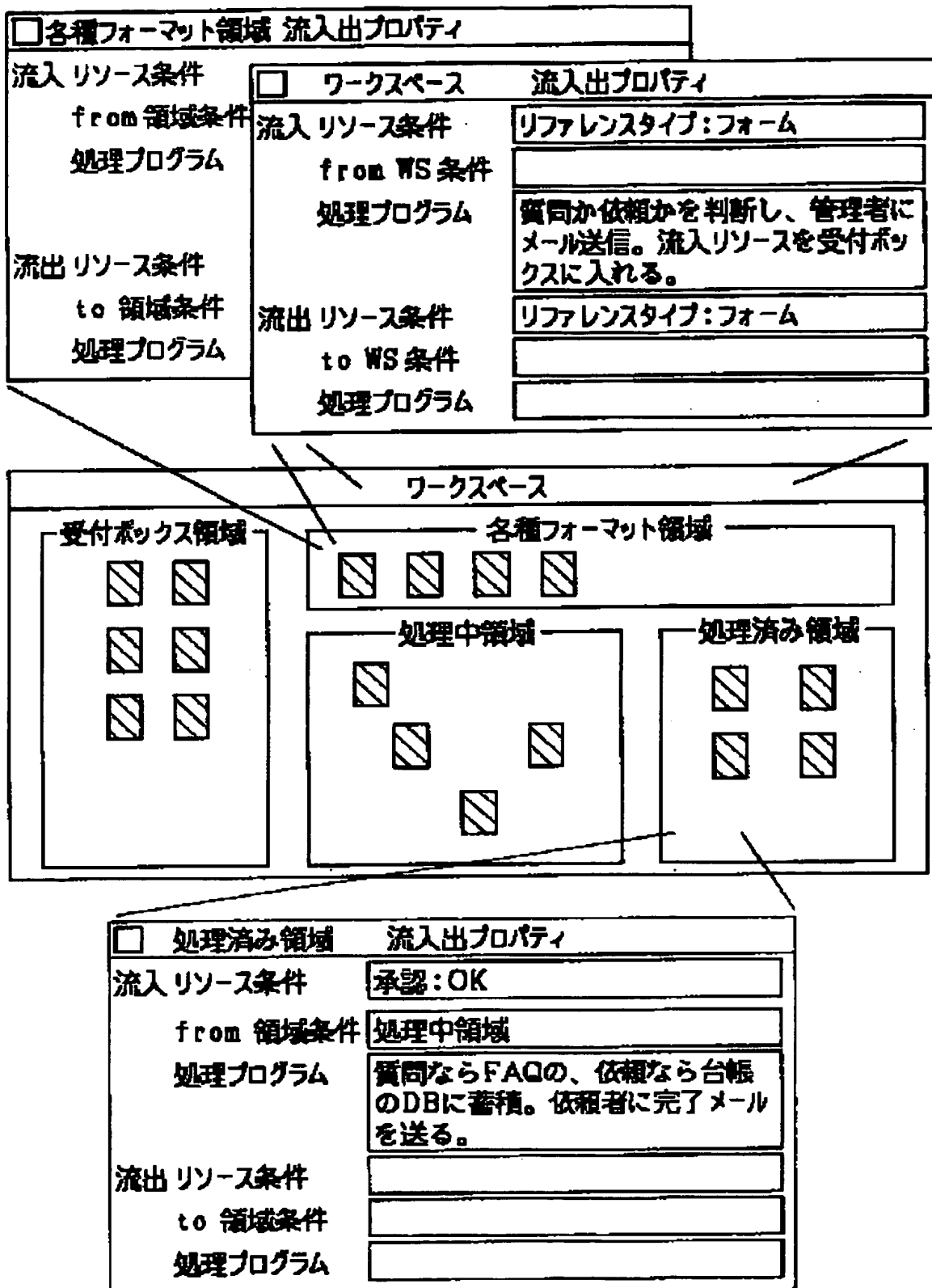
[Drawing 51]



[Drawing 52]



[Drawing 53]

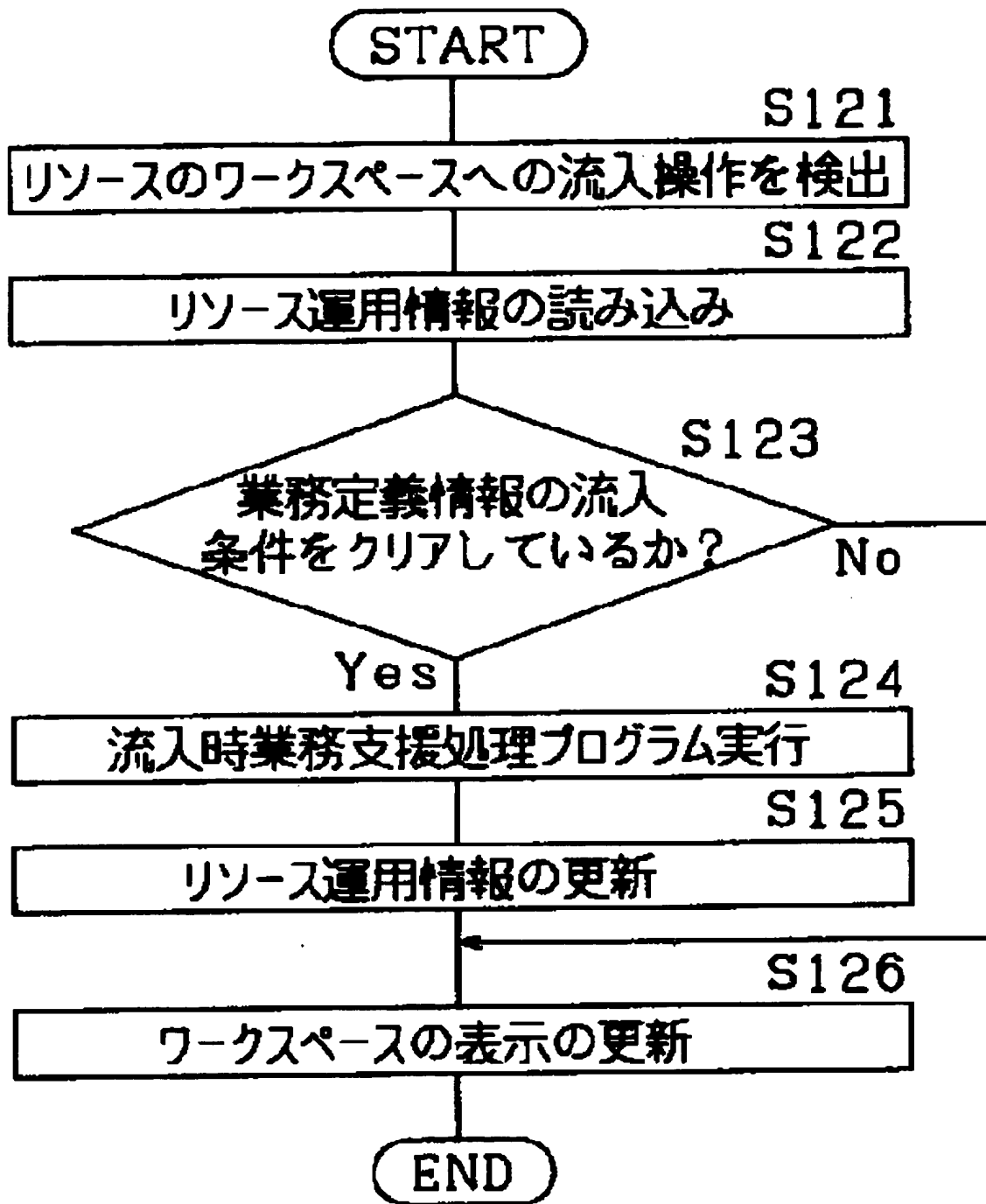


[Drawing 54]

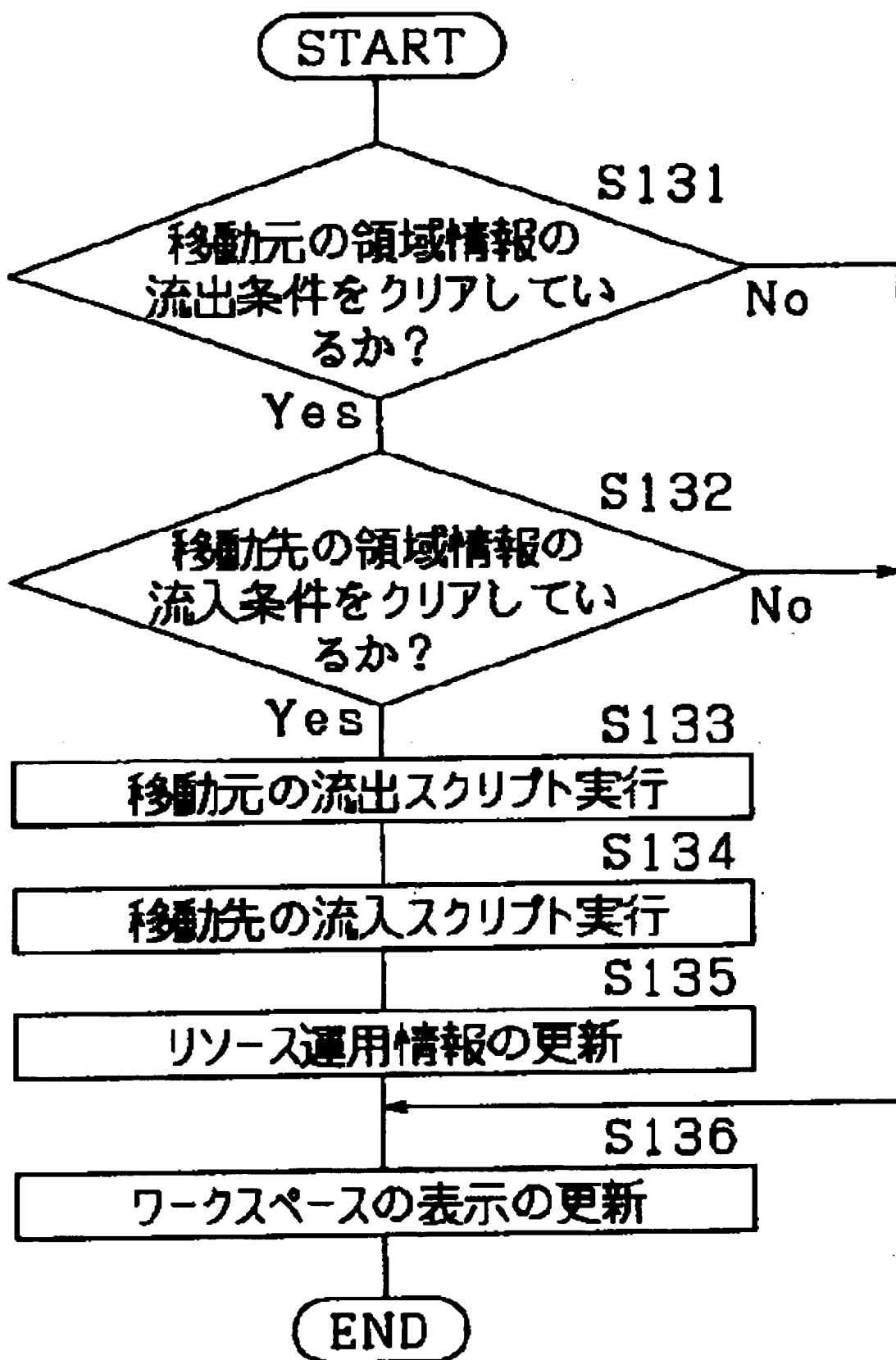
□ 各種フォーマット領域 流入出プロパティ	
流入 リソース条件	リファレンスタイプ: フォーム
from 領域条件	
処理プログラム	
流出 リソース条件	リファレンスタイプ: フォーム
to 領域条件	
処理プログラム	流出対象の文書をコピーし、コピーを流出させる



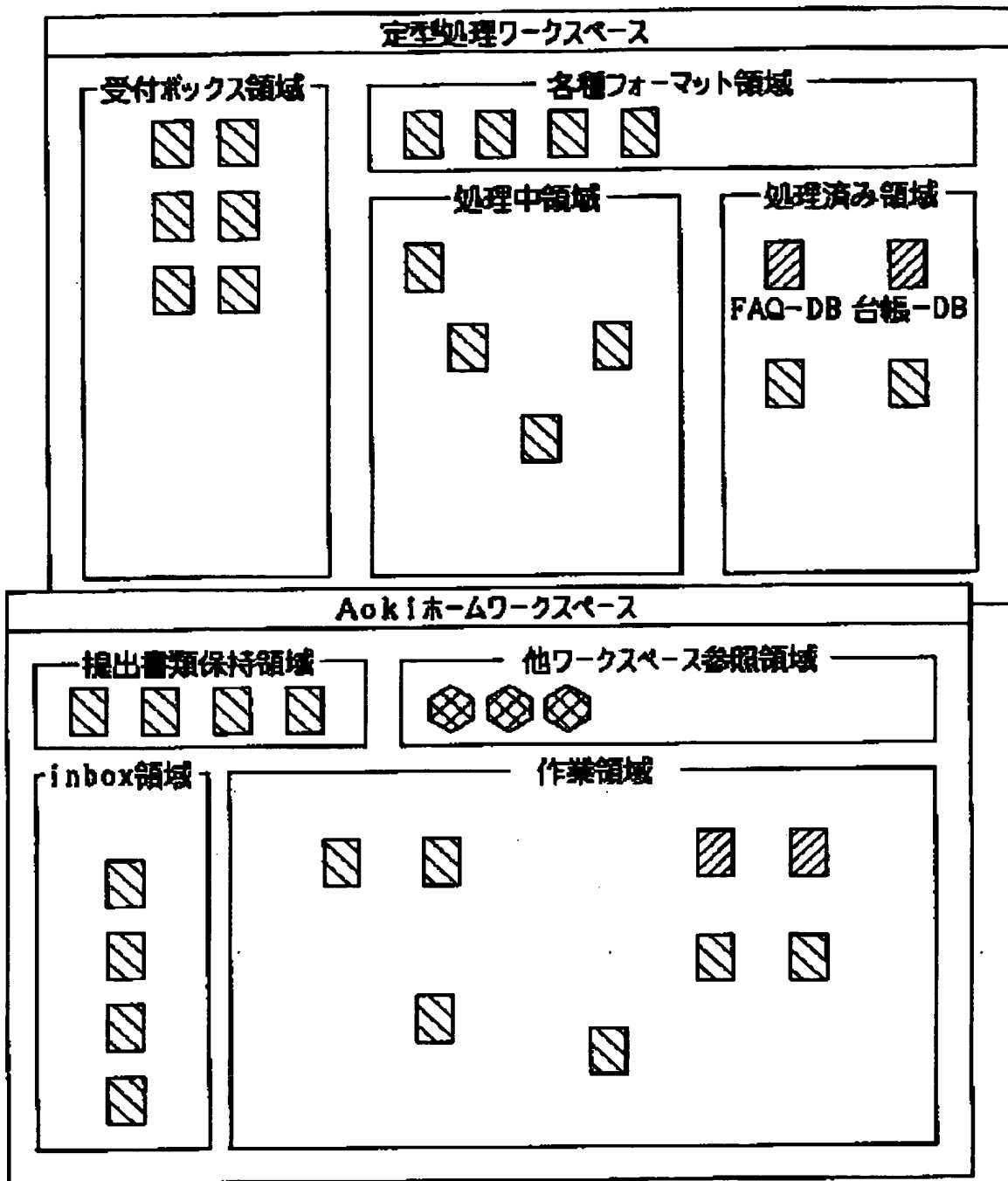
[Drawing 55]



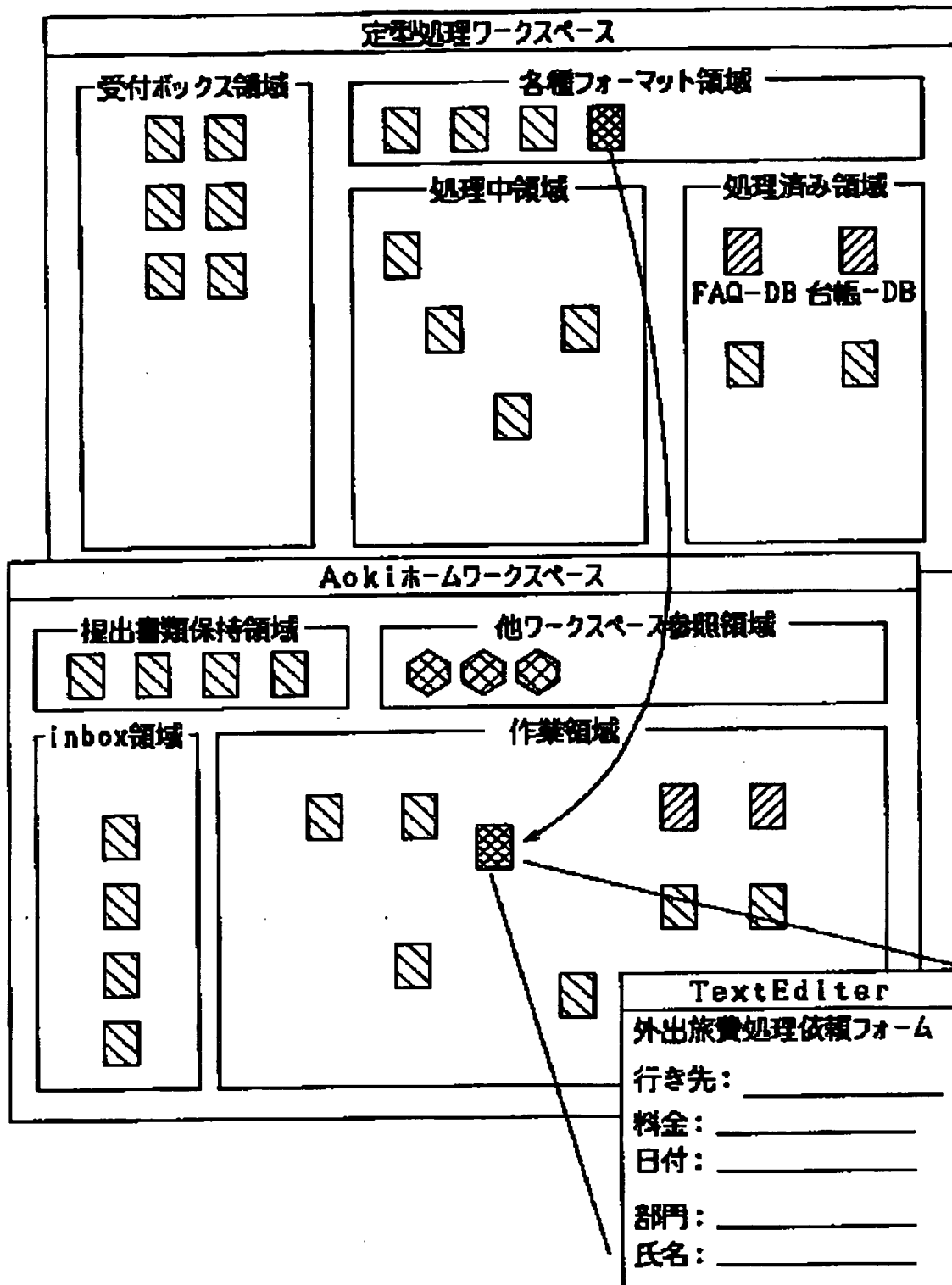
[Drawing 56]



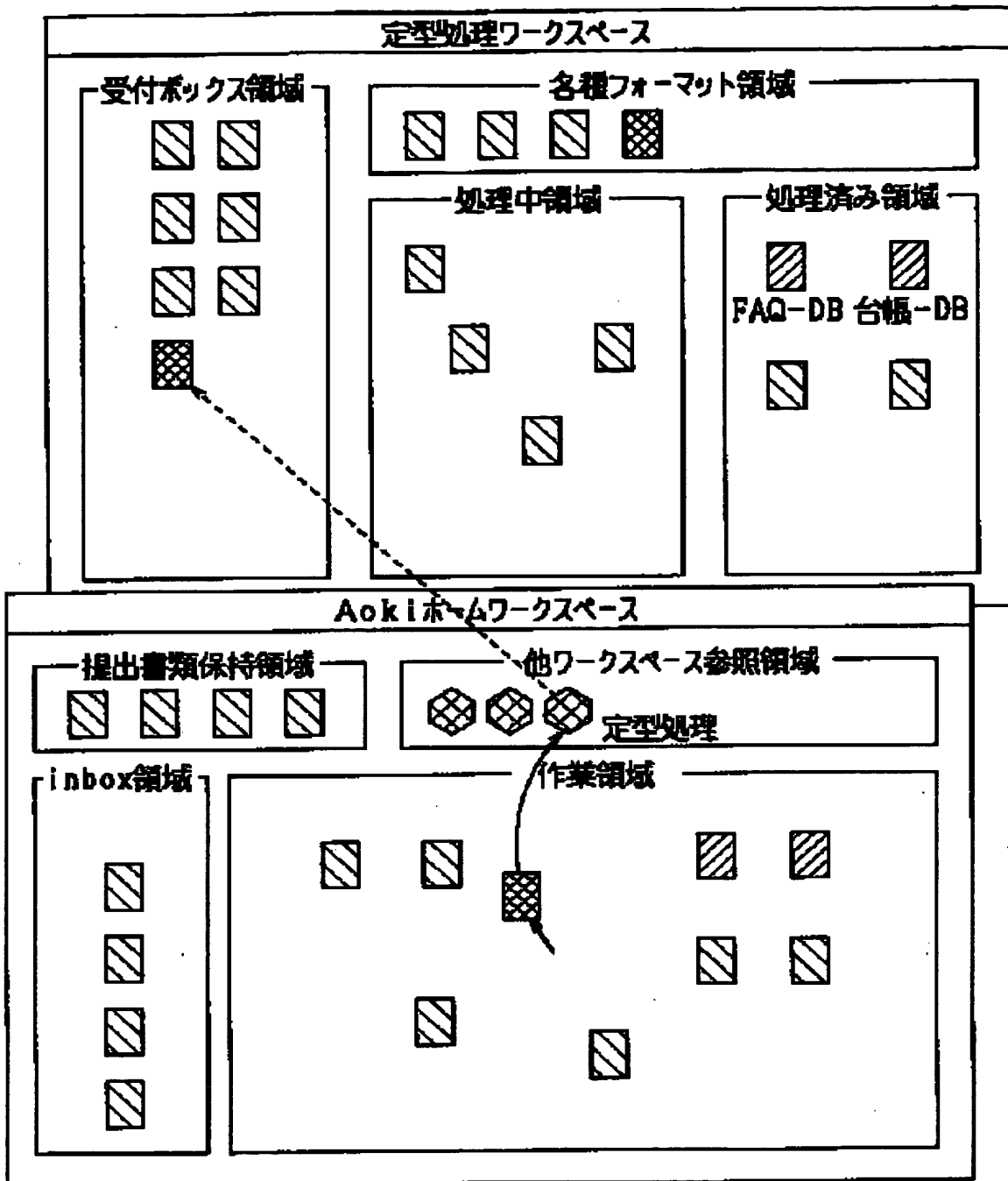
[Drawing 57]



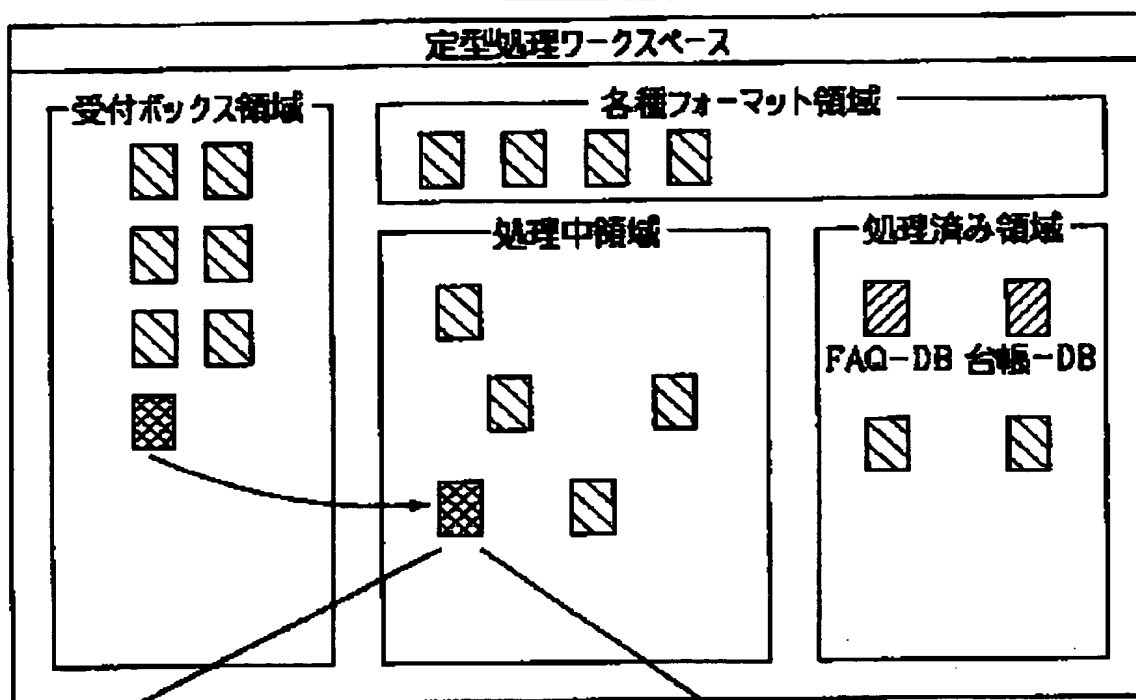
[Drawing 58]



[Drawing 59]



[Drawing 60]



**リソース運用情報: プロパティシート**

**外出旅費処理依頼フォーム**

リファレンスタイプ  
: フォーム

承認: ☒ OK ☐ 保留

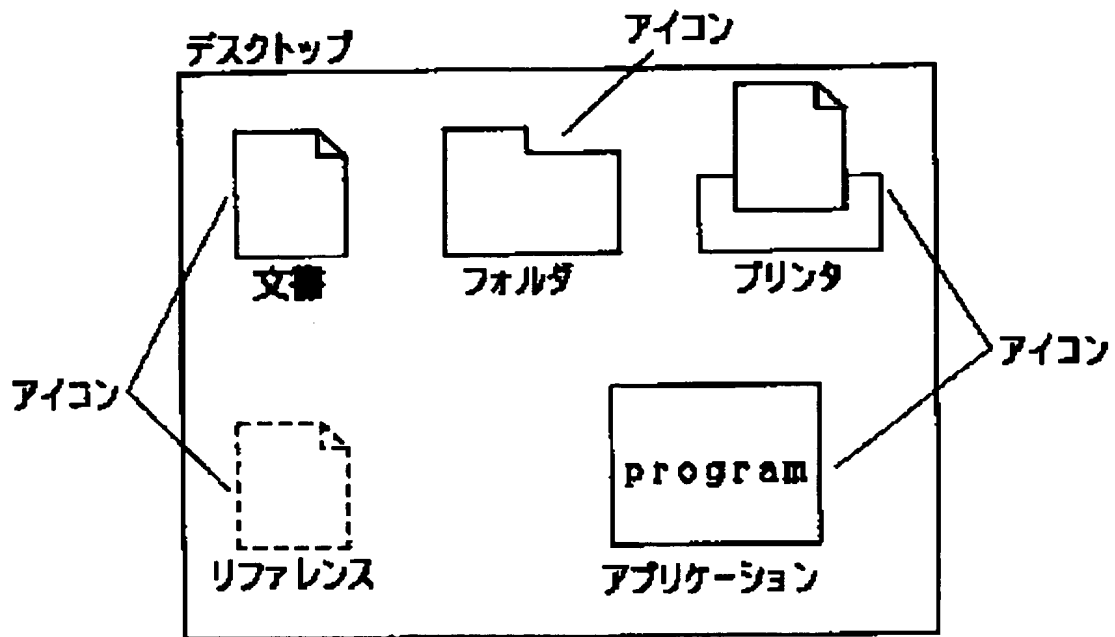
リファレンス作成者  
: Aoki

参照リソースDIR  
: /resources/from/外出処理

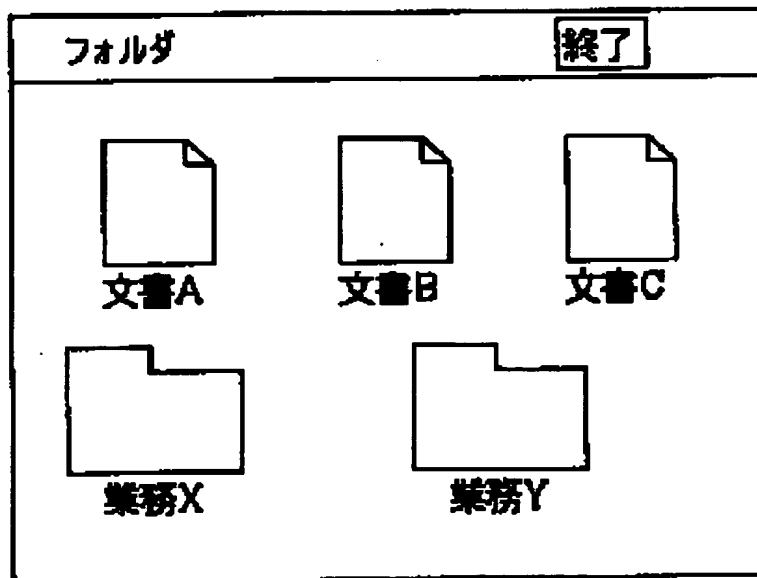
起動アプリケーション  
: /resources/bin/TextEdit

[Drawing 61]

(A)

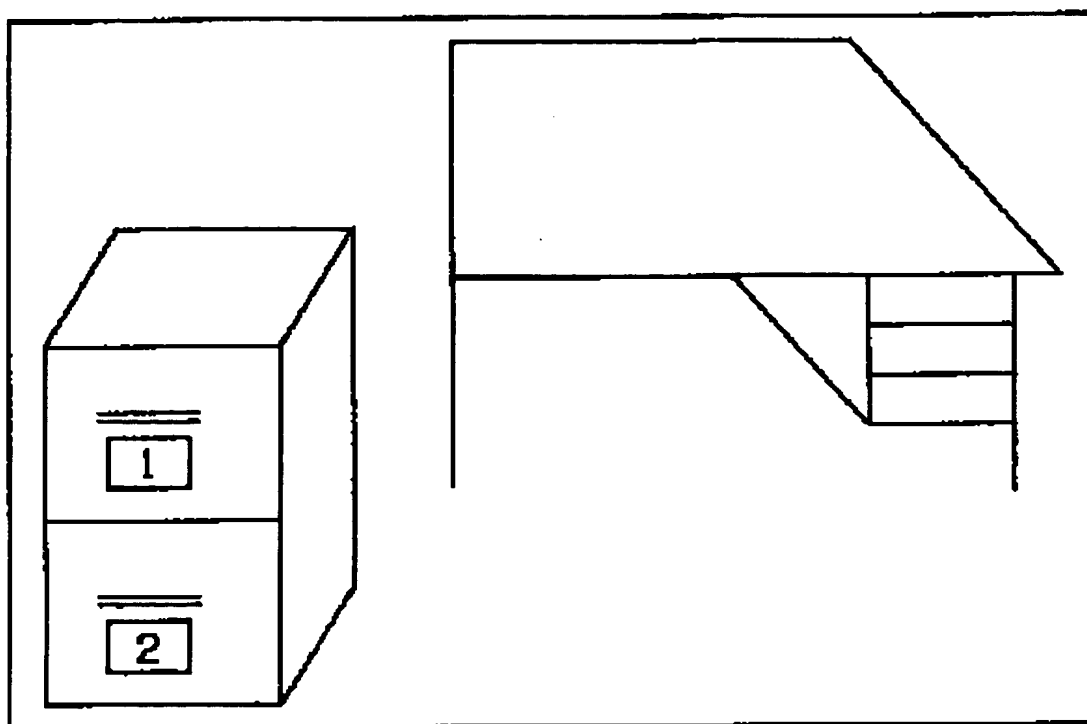


(B)

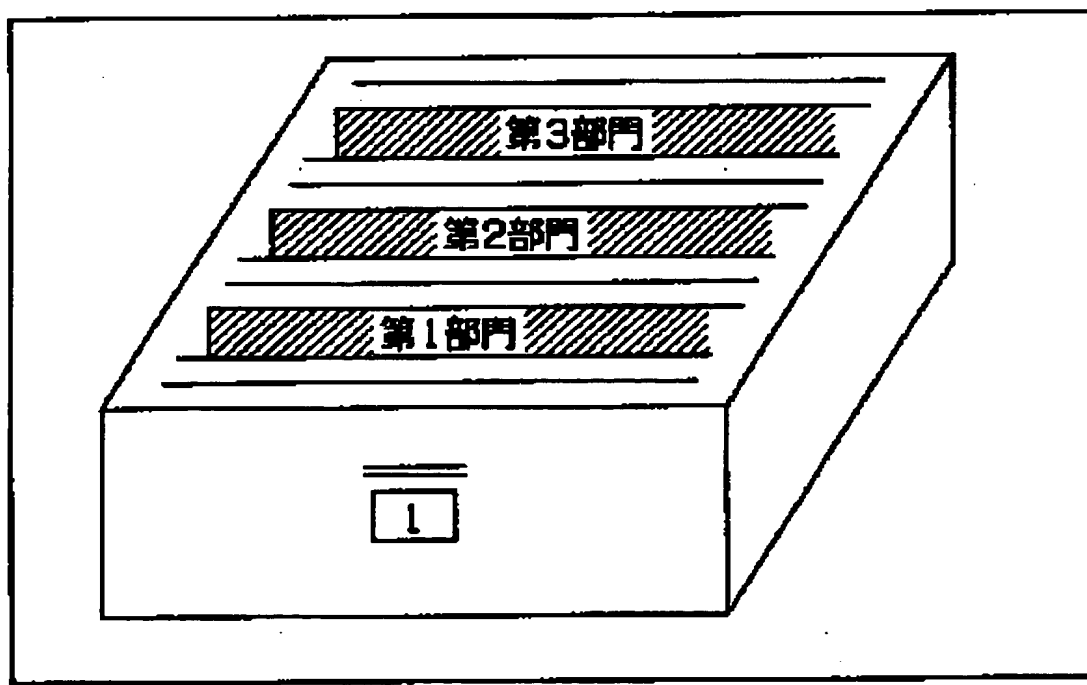


[Drawing 62]

(A)



(B)





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## DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] It is the block diagram showing the gestalt of operation of the 1st of the information processor of this invention.

[Drawing 2] It is explanatory drawing of an example of directory structure.

[Drawing 3] It is explanatory drawing of an example of resource peculiar information.

[Drawing 4] It is the conceptual diagram of the relation between a primary resource and a workspace in the gestalt of operation of the 1st of the information processor of this invention.

[Drawing 5] It is explanatory drawing of an example of the data structure of the operating related information in the form of operation of the 1st of the information processor of this invention.

[Drawing 6] It is explanatory drawing of an example of the ground picture in the form of operation of the 1st of the information processor of this invention.

[Drawing 7] It is explanatory drawing of an example of the resource employment information in the form of operation of the 1st of the information processor of this invention.

[Drawing 8] It is explanatory drawing of an example of the field on the ground picture in the form of operation of the 1st of the information processor of this invention.

[Drawing 9] It is explanatory drawing of an example of the field information in the form of operation of the 1st of the information processor of this invention.

[Drawing 10] It is explanatory drawing (continuation) of an example of the field information in the form of operation of the 1st of the information processor of this invention.

[Drawing 11] It is explanatory drawing of an example of the field data in the form of operation of the 1st of the information processor of this invention.

[Drawing 12] It is explanatory drawing of an example of the section information in the form of operation of the 1st of the information processor of this invention.

[Drawing 13] It is the flow chart which shows an example of operation in the form of operation of the 1st of the information processor of this invention.

[Drawing 14] It is the flow chart which shows an example of operation of a workspace display program.

[Drawing 15] It is the flow chart which shows an example of operation of a move program.

[Drawing 16] It is the block diagram showing an example of the concrete use form in the form of operation of the 1st of this invention.

[Drawing 17] It is explanatory drawing of the example of starting of the information processor in the form of operation of the 1st of this invention.

[Drawing 18] It is explanatory drawing of an example of the workspace of the during starting in the example of the form of operation of the 1st of the information processor of this invention.

[Drawing 19] It is explanatory drawing of an example of the workspace in the state where the document for edit was drawn up.

[Drawing 20] It is explanatory drawing of an example of the directory structure after the copy of a document.

[Drawing 21] It is explanatory drawing of an example of the workspace after move operation.

[Drawing 22] It is explanatory drawing of an example of the workspace at the time of recognizing a report.

[Drawing 23] It is explanatory drawing of an example of the workspace at the time of dismissing a report.

[Drawing 24] It is explanatory drawing of an example of the workspace at the time of publishing a document.

[Drawing 25] It is explanatory drawing of an example of the directory structure after document registration.

[Drawing 26] It is explanatory drawing of an example of the shared workspace.

[Drawing 27] It is explanatory drawing of an example of a workspace which Mr. Baba catches sight of.

[Drawing 28] It is explanatory drawing of an example of a workspace which Mr. Chiba catches sight of.

[Drawing 29] It is the block diagram showing the form of operation of the 2nd of the information processor of this invention.

[Drawing 30] It is explanatory drawing of an example of time information.

[Drawing 31] It is explanatory drawing of an example of recording information.

[Drawing 32] It is the flow chart which shows an example of whole operation in the form of operation of the 2nd of this invention.

[Drawing 33] It is the flow chart which shows an example of operation of a schedule display program.

[Drawing 34] It is the flow chart which shows an example of operation of a workspace restoration display program.

[Drawing 35] It is explanatory drawing of an example of the ground picture in the form of operation of the 2nd of this invention.

[Drawing 36] It is explanatory drawing of the field on the ground picture in the form of operation of the 2nd of this invention.

[Drawing 37] It is explanatory drawing of the field information in the form of operation of the 2nd of this invention.

[Drawing 38] It is explanatory drawing (continuation) of the field information in the form of operation of the 2nd of this invention.

[Drawing 39] It is explanatory drawing of the state of a workspace just before investigation 1 is completed.

[Drawing 40] It is explanatory drawing of the state of a workspace immediately after investigation 2 starts.

[Drawing 41] It is explanatory drawing of an example of the input screen of the reference conditions in a time-axis reference tool.

[Drawing 42] It is explanatory drawing of an example of the screen in a time-axis reference tool by which it was indicated by the schedule.

[Drawing 43] It is explanatory drawing of an example of the workspace restoration display in a time-axis reference tool.

[Drawing 44] It is explanatory drawing of another example of the workspace restoration display in a time-axis reference tool.

[Drawing 45] It is the block diagram showing the form of operation of the 3rd of the information processor of this invention.

[Drawing 46] It is the conceptual diagram showing an example of the data structure in the primary resource Management Department 11 in a form and the workspace Management Department 12 of operation of the 3rd of an information processor of this invention.

[Drawing 47] It is explanatory drawing of an example of the data structure of the operating related information in the form of operation of the 3rd of the information processor of this invention.

[Drawing 48] It is explanatory drawing of an example of the data structure of the operating definition information in the form of operation of the 3rd of the information processor of this invention.

[Drawing 49] It is explanatory drawing of an example of the data structure of the field information within the operating definition information in the form of operation of the 3rd of the information processor of this invention.

[Drawing 50] It is explanatory drawing of an example of the data structure of the resource employment information in the form of operation of the 3rd of the information processor of this invention.

[Drawing 51] It is explanatory drawing of an example of a display of the workspace in the form of operation of the 3rd of the information processor of this invention.

[Drawing 52] It is explanatory drawing of another example of a display of the workspace in the form of operation of the 3rd of the information processor of this invention.

[Drawing 53] It is explanatory drawing showing an example of the screen under setup of the operating definition information on the workspace in the form of operation of the 3rd of the information processor of this invention.

[Drawing 54] It is explanatory drawing showing an example (part) of the screen under setup of the operating definition information on the workspace in the form of operation of the 3rd of the information processor of this invention.

[Drawing 55] It is the flow chart which shows an example of operation at the time of the inflow of the resource in the form of operation of the 3rd of the information processor of this invention.

[Drawing 56] It is the flow chart which shows an example of operation of the domain migration of the resource in the form of operation of the 3rd of the information processor of this invention.

[Drawing 57] It is explanatory drawing showing an example of the concrete screen display of the workspace in the form of operation of the 3rd of the information processor of this invention.

[Drawing 58] It is explanatory drawing of the scene of copying form to an Aoki homework space and burying it from a fixed form processing workspace in the example in the form of operation of the 3rd of the information processor of this invention.

[Drawing 59] It is explanatory drawing of the scene which returned again the form written in in the example in the form of operation of the 3rd of the information processor of this invention to the fixed form processing workspace, and was received.

[Drawing 60] It is explanatory drawing of the scene where it recognized by a person in charge checking the resource of a reference place in the example in the form of operation of the 3rd of the information processor of this invention.

[Drawing 61] It is explanatory drawing of a desktop.

[Drawing 62] It is explanatory drawing of an example of the display screen of the conventional information processor using the design.

**[Description of Notations]**

1 [ -- Workstation, ] -- A file server, 2 -- A mail server, 3 4 [ -- Workspace Management Department, ] -- A network, 11 -- The primary resource Management Department, 12 13 [ -- Workspace display, ] -- An organization information attaching part, 14 -- The message transfer section, 15 16 [ -- User discernment section, ] -- The resource arrangement section, 17 -- An operating support processing statement part, 18 19 [ -- The reference conditioning section, 53 / -- Display periodical-accounting section, ] -- The I/O section, 51 -- An operating record attaching part, 52 54 [ -- A workspace restoration display, 57 / -- The resource selection section, 111 / -- The resource status-change judgment section, 112 / -- The resource status-change section, 113 / -- Resource status-change directions section. ] -- An operating schedule display, 55 --

The workspace record selection section, 56

---